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FEN SKATING

By

N. & A. GOODMAN



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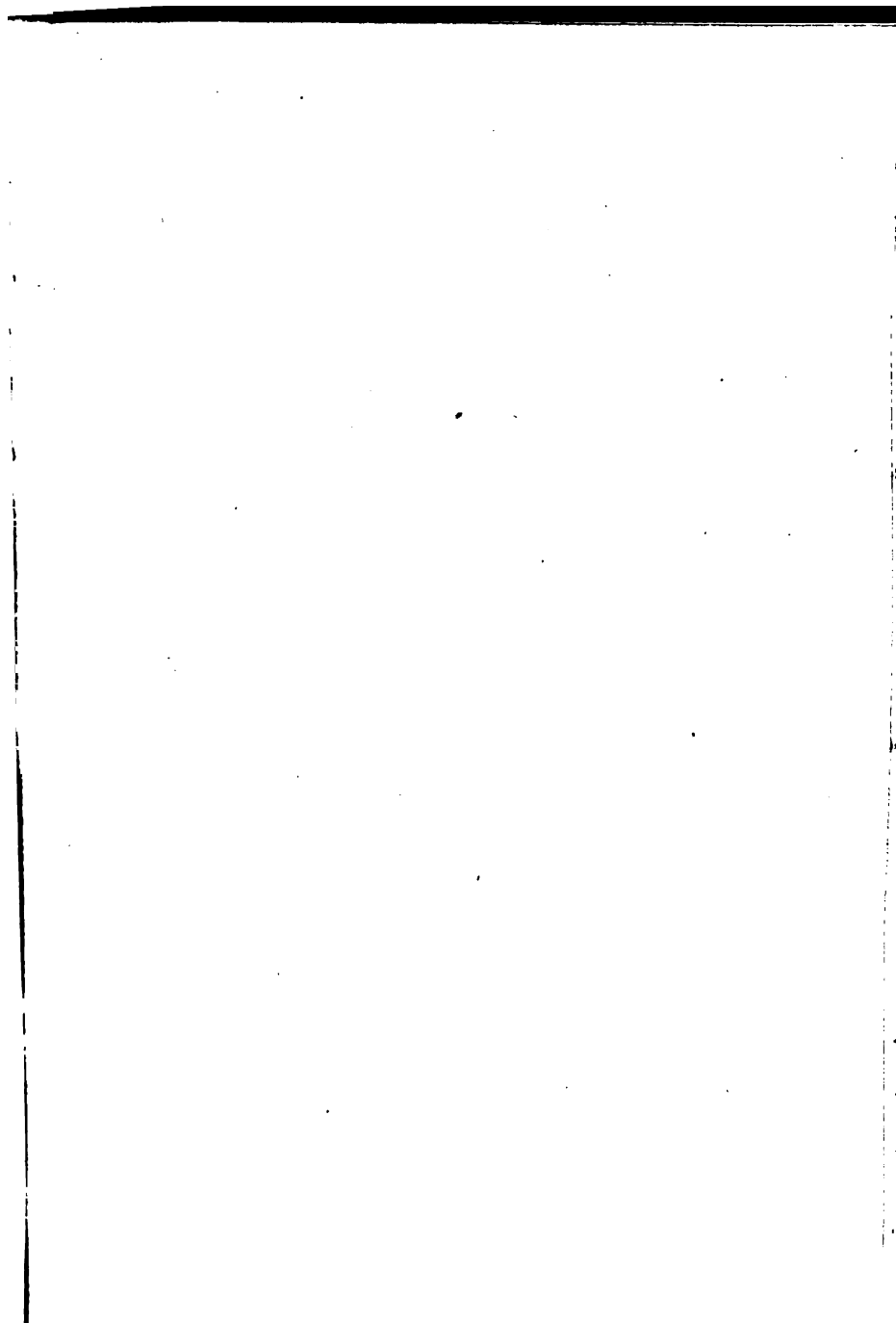
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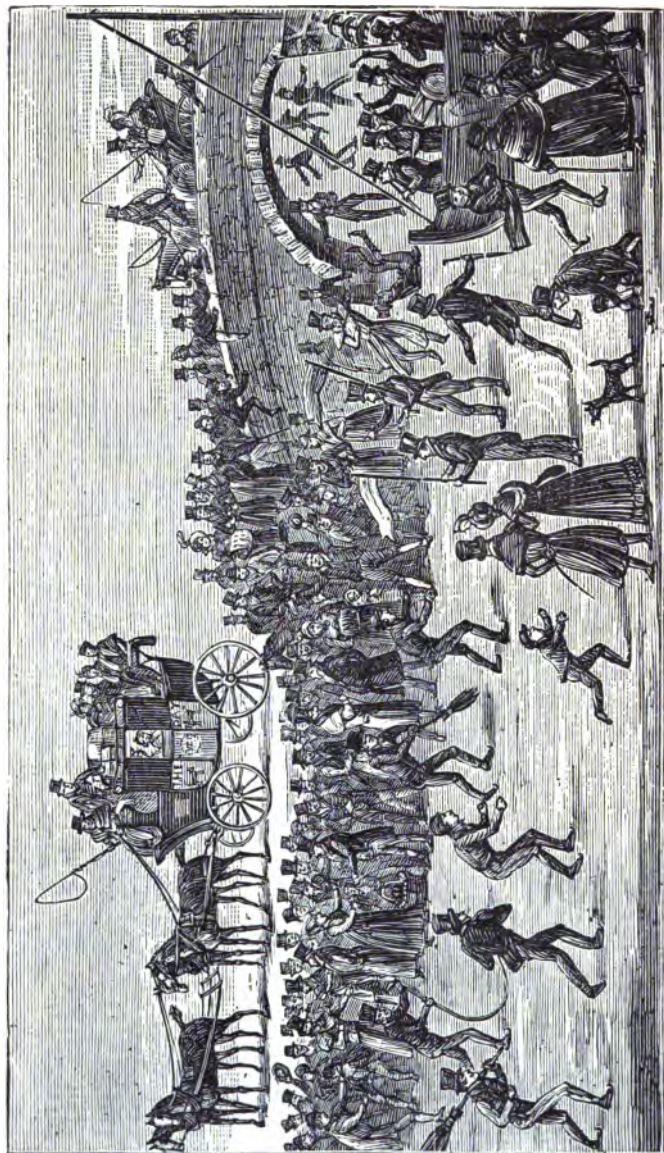


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SKATING MATCH AT CHATTERIS.

(This engraving is copied from "Annals of Sporting," vol. for 1823.)

HANDBOOK
OF
FEN SKATING,

BY
NEVILLE GOODMAN, M.A.,
AND
ALBERT GOODMAN.

WITH A MAP OF THE FEN DISTRICT, PREPARED BY
MR. SIDNEY TEBBUTT.



LONDON :
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CONTENTS.

FEN SKATING AS A SPORT, BY ... NEVILLE GOODMAN.

HISTORY OF SKATING, „ ... DITTO.

SKATES AND SKATING ... „ ... ALBERT GOODMAN.

MAP OF FEN DISTRICT ... „ ... SYDNEY TEBBUTT.

GEOGRAPHY AND TRAVELLING „ ... NEVILLE GOODMAN.

ILLUSTRATIONS ... „ ... ALBERT GOODMAN.





LIST OF ILLUSTRATIONS.

	Page.
Skating Match at Chatteris, from a picture by "Croft" <i>Frontispiece</i>	
George (Fish) Smart	25
Walnut-wood Skate, Fig. 1	74
Association Registered Marks	76
The "Standard" Skate, Fig. 2	78
Separate parts of the Standard Skate, Fig. 3	79
View of a Skate fastened on boot, Fig. 4	86
Fig. 5	87
Gaiters and Strap guards, Fig. 6	89
Skate with fixed strap, &c., Fig. 7	91
Gimlets and forked key, Fig. 8	93
Skate with improved fastenings, Fig. 9	94
Position of the foot when skating, Fig. 10	95
Series of six views of a skater, Fig. 11	110
Fig. 12	111
Diagram of strokes on the ice, Fig. 13	113
Side view of skater, Fig. 14	115
Diagram of positions of the skate, Fig. 15	118
Position of the foot when skating, Fig. 16	119
Tail piece	125
Snow Plough	126
Comic scene	128
Tragic scene	129
Diagram of a skating-course, Fig. 17	131
Skating-chair as used, Fig. 18	136
" folded up, Fig. 19	137
Hockey-sticks, Fig. 20	141
Diagram of Hockey-field, Fig. 21	144
Map of the Fen Rivers, &c., by Mr. Sidney Tebbutt	150, 151
Tail piece	154
Tail piece	193



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PREFACE.

THIS "Handbook" has been prepared by ardent lovers of a sport which has been long practised and enjoyed in their immediate neighbourhood.

They believe this is the first time that any treatise on the subject of "Fen Skating" has been offered to the public.

The subject is beset with difficulties. Animal locomotion, in which the propelling force and the propelled weight so nearly coincide, offers very complex problems for solution, and of these skating is not the least difficult. The records of the performances of noted skaters are fast fading away. Even the geography of the fen rivers and water courses from artificial causes is constantly changing; and it has been necessary to treat of a passing phase of that which is in itself transitory.

In their endeavours to overcome these difficulties, especially in the department of geography, the authors have been largely indebted to Messrs. D. C., and S. S. Burlingham of Lynn, the Messrs. Tebbutt, of Bluntisham, S. Eggar, Esq., of Wryde House, Thorney, and many others, who have most cordially assisted them.

It is hoped that appendices B and C which embody most of the suggestions and information furnished by

these gentlemen may be of service to skating tourists. Appendix B. gives a list of rivers and water courses, with some particulars concerning their width and skating qualities. Appendix A contains the rules of the Game of Hockey, prepared by Messrs. F. Jewson and A. Tebbutt.

Some additional information has been received since the book has been committed to the press, but it was thought desirable to publish at once. As, however, the subject is of growing interest, and some errors cannot fail to have found their way into the following pages, the authors will be glad of such corrections and additions to their knowledge of "Fen Skating" as readers will send them.



FEN SKATING AS A SPORT.

THE title of this little treatise, though perfectly intelligible to most residents in the Eastern Counties of England, needs some explanation in case it should fall into the hands of those who live in other parts of the country.

Owing to the severity of the last three winters, and also, in no small degree, to the efforts of the National Skating Association and its indefatigable Secretary, Mr. J. D. Digby, of Cambridge, skating is now very generally known as an artistic pastime and an athletic sport; but many are still quite unacquainted with the fact that there are two totally distinct styles of skating which need different implements, differently attached to the foot, and even surfaces of ice different in extent and quality for their several practice. These two styles are respectively named Fen and Figure Skating. Running or travelling skating as distinguished from those graceful evolutions on the ice which have no object but their own performance, has been named "fen skating," from the locality in which it is most practised, and brought to its highest perfection.

The affix "Fen" must here be taken not in its more general sense, but as applied to *the* fen, fens, or fen country, (*i. e.*) that combined deposit of river sediment, marsh vegetable growth and sea silt, which lies in one continuous tract around the mouth of all those rivers which deliver their waters into The Wash, and forms the largest and most equably fertile plain to be found in the British Islands. Throughout that vast level almost every field is divided from its neighbours by an open ditch or drain, and these form the capillaries which deliver their water through larger and larger trunks into main arterial drains, from where they are pumped into the rivers which are carried by the aid of embankments from the highland to the Wash in artificially defined channels. It is not unnatural that a district thus eminently suited for travelling over the surface of its waters, when frozen, should give the name to that style of skating of which we treat. The reader must not, however, suppose that this style of skating is necessarily local or circumscribed. It might well be practised, and it is the desire of the authors to promote its practice, in other localities where sheets or tracts of readily frozen waters are to be found.

The National Skating Association, to whose acting Committee and racing Sub-Committee the writer has the honour to belong, was first formed, "to promote, ascertain and reward speed in skating." It has now enlarged its objects so as to include the promotion and encouragement of figure skating. The discussion and

correspondence occasioned by this enlargement of its sphere of action brought into strong relief the different estimate in which these rival styles were regarded by different people.

In that correspondence many figure skaters, though desirous of joining the Association, could not refrain from many expressions of intolerance and contempt in regard to the style which they would hardly admit was the sister art. These expressions were some of them so racy that we regret that we do not feel at liberty to publish them, and they evidently proceeded from such genuine emotions that it seems necessary for us to give some indication of the art of which we design to write.

Now these somewhat intolerant and contemptuous expressions could doubtless be paralleled by similar converse ones on the part of fen skaters in speaking of figure skating.

All such expressions, however, are based on ignorance. Those who indulge in them, either on the one side or the other, have never observed the best performances in that style of skating which they do not practise.—Certainly the figurers who thus express themselves have never carefully observed such men as "Turkey" or "Fish" Smart in full career; one of whose giant strides they are as incapable of imitating as these Fenmen would be of performing the wonderful evolutions of the figurers. Now, although we have often observed and admired the best performances of figure skaters, it is no part of our duty or intention to extol the merits of figure skating.

We leave that to others. It is, however both our duty and intention to commend to our readers the *going* as distinguished from the *showing* style of skating.

The authors of this book are by inheritance, position, and conviction the natural advocates of this style as distinguished from all other styles of skating.

Our father was born in the fen country. Our grandfather was a fen farmer. Their houses were built in the midst of the Great Level. The black moorland, enriched with the alluvion of a thousand floods, gave them employment and a livelihood, and in it they invested their savings. It amply repaid their labour and their confidence, and it would be base ingratitude in us not to regard *The Fen* as a cherished fatherland. And truly without depreciating the richer scenery of peak and precipice, rock and rill, fern and forest, wold and down, we do turn with no common reverence and patriotic fondness towards that wide expanse of level plain upon whose often submerged surface the Witham, the Welland, the Nene, the Cam and the Ouse once poured their combined waters and through which these rivers are now conveyed in artificial channels. We are naturally proud of the fens and fenmen. Proud of the prowess and determination with which the fen folk have converted those vast swamps from being the abode of the pike and the eel, the widgeon, pochard and hooper into one of the most productive corn growing areas in the Land. We are also proud—perhaps equally proud—of that sportive art which has been practised with consummate skill by

fenmen from time immemorial—the art of fen skating. We profess ourselves the devoted admirers of the fen style of skating, as distinguished from every other style. We concede at once to the figure skater, for whom, if he be worthy of the name, we have a sincere admiration, that the gyrations and evolutions which he (and perhaps some few hundred more) is capable of performing are graceful and skilful if they come off readily, smoothly and without jerk or check. When, however, as is constantly the case, we hear some highland youth, whom the minute before we have seen raising the heels of his clattering *acmes* high in the air, and after each tremulous suspension, crashing them down before him and then rolling helplessly either to right or left—on the outside or inside edge as he delights to call it—as the uncontrolled laws of nature and gravitation dictate;—when we hear such an one, on the strength of being able after years of practice to subscribe on the smooth surface a rickety 3 or a shambling 8, speak of *fen* skating as though it were a rough mechanical awkward ungainly habit, fit only for boors and practised only by clowns; we feel inclined to explode into wrath when it would be wiser to explode with laughter. Suppressing then both these emotions of resentment and contempt, if such an one is still open to conviction, we lay before him the following considerations.

First, then, he is in error in supposing that fen skating is a rude or easily acquired art. Nor is it a conventional or a local one. The art of fen skating is the art of pro-

gressing with the utmost speed and with the least labour whithersoever the skater wishes to go on the ice. To deliver the stroke at the greatest mechanical advantage—to ride and roll upon the thin iron with the most perfect balance, and to manage the relations of the centre of gravity and the points of support and resistance with precision, are essential to this art. This requires long practice, and is seldom acquired if not attempted in early youth. The shape and make of each individual will no doubt modify in many particulars the gait of the skater, but there is, nevertheless, a typical style which is alone consistent with rapid and easy locomotion, and that style may be unhesitatingly pronounced to be the *fen* style. In proportion as any skater is capable of combining high speed with the avoidance of all unnecessary labours, he approaches the true fen style of skating. Let no one suppose that the fenman's stooping posture, his rolling gait, his apparently extravagant sidelong stroke, or even the position of his head, or the swaying of his arms are the results of any perverse conventional mannerism, perpetuated by imitation. All these are the inexorable conditions of high and easy speed. If any one doubt this let him recall the fact that a fenman's gait on the ice is easily recognised wherever he may be, and that for speed he has no rival in the British Islands, or perhaps in the World. Youth, activity, strength and endurance are certainly not confined to the fens, yet it may be predicted with certainty that when men from any other locality are brought into competition with

fenmen they will certainly be beaten. This fact can only be rationally accounted for on the hypothesis that the fenman has, by long practice, early commenced, acquired the consummate mastery of an art, which, however simple it may appear, is not easily mastered. Three years ago it was reported that some swift skaters from Lancashire and London were about to come down to the fens and carry off the palm for speed from the natives. They were the picked men of their own populous localities. They were fine active young fellows, and, of course, had fair play shown them, but their discomfiture and collapse were utter. With good natured candour one of them said : " We are the best men in our parts. But we *run*. These fenmen *flee*."

But when this is admitted the quasi-figure skater is apt to say : " but at least the fen style is awkward and inelegant." There is no disputing about matters of taste. To the denizen of the drawing room the gambols of a poodle may be infinitely more elegant than the long raking stride of the greyhound. To a cockney the arched neck and high stepping gait of a carriage horse may seem nobler than the bearing of the race horse as he lays himself to the ground with outstretched neck and low action. Those, however, who are judges of speed and the adaptation of animals to this one end, take a keen delight in observing the incomparable power put forth in the course and the race. So the eye that has been educated to observe and delight in the motions which conduce to easy speed in skating will detect among the

thousands which throng the ice of the Serpentine every fenman whether he be going slowly or fast, because in each of his strokes there is a poise and grace which indicates that his strength is so used and so economised as to give promise of enduring speed. In this case, as in so many others, the suitability of means to end is the first canon of that artistic code which enables us to appreciate the beautiful, and those who can appreciate both speed and its requisites will certainly not consider the fenman's style inelegant as compared with that of his highland rival. To the uninitiated no doubt the stooping posture detracts from the grace, but if this be indispensable to the highest speed against the wind, it is as absurd to speak of it as awkward, as it would be to complain of the swimmer's want of elegance because he is compelled to sprawl like a frog, or of the high jumper because he doubles his knees up to his nose instead of holding himself stiff and erect. What an equestrian performance on a padded circus horse is to a steeple chase,—what the figures of a dancing master are to the feats of Western and Rowell, what a pageant is to a battle; that, in the eyes of fenmen, is figure skating when compared to fen running.

When a fenman is from any cause, driven from his native fields or dykes to practise his sport on some confined and crowded suburban pool, he is often met with this question. "Why do'nt you practise figure skating?" "Surely you will soon get tired of racing up and down here. Your sport is monotonous. Are you not am-

“bitious to accomplish some fresh feat of skill now “beyond your power?” Those who make these enquiries forget what a magnificent arena for his sport the fenman has. In the midst of a flat expanse containing 1,300 square miles, which is intersected by a complete network of rivers, drains and ditches, and where also immense areas are set apart as reservoirs for water in time of flood, he finds an unlimited scope for his actions, starting from his very door. As but one instance of this unlimited field there lie between Earith and Denver Sluice, a distance of 21 miles, two artificial cuts, the *Hundred Feet* and the *Old Bedford* river, which latter is closed at its upper end by gates, and between these, with an average breadth of half a mile, the Washes which communicate with the Old Bedford. When the water is high and the gates are open, these washes constitute one unbroken tract of water. Thus, in case of frost, the inhabitants of Welney, Mepal, Sutton, Earith, Salter’s Lode and the whole of that neighbourhood are provided with a highway right through the county of Cambridge from side to side, and far into Norfolk. If the waters are “out” the whole wash is at his disposal. If they are low then the Old Bedford, a river equal in length to the 100-foot, and without current or overhanging protection of any kind, offers an easily consolidated surface to the frost. In any case the fenman has abundant skating usually a week before and not unfrequently a week after his highland neighbours, or the Ouse or Cam in their upland reaches have a particle of ice upon them. Hence a fenman is

quite a stranger to that sense of being restricted which drives the less favoured highland-man to make the most of his small patches of ice. To call upon the fenman to forego his advantages to practise figure skating, he would regard much as an alpine climber would regard an appeal for him to forsake his peaks, passes and glaciers, and stay at home to perfect himself in a pirouette. Add to this, that to prevent any chance of monotony the fenman has almost always open to him that most magnificent of all games, "hockey" on the ice. When this game is played by good players and under proper conditions it has no fellow. It requires an energy, activity and courage—a combined dexterity of foot, hand and eye, which no other game demands. We have sometimes heard this game spoken of contemptuously by figure skaters. If, however, those who pride themselves on objectless evolutions enter into the game as it is played at Earith, their scorn is converted into respect, often accompanied by despair of ever being able to emulate the dash, skill and endurance there exhibited in this most glorious game.

The contempt felt by figurers for fen skaters is too often heartily reciprocated. We have seen a figurer after going through a series of rapid flourishes before fenmen to whom the performance appeared quite uncalled-for, egotistical and absurd, and ending as such performances sometimes do, in a full length fall, greeted with a chorus of "*Sarves him right.*" On one occasion a fen skater in utter disgust at such an exhibition while

the figurer was yet in the midst of his gyrations tossed a copper into the circle made by the bystanders, to intimate that he looked on the performance as no better than that of a mountebank. This feeling is of course unreasonable and the expression of it discourteous, but it is not more unreasonable than the contempt expressed by figure skaters for an art which they have never acquired. Fenmen are certainly not unreasonable in that, having such a fine field and vast opportunities before them, they deliberately leave what some conceive to be a more refined art to others, and are content to shine unsurpassed and unrivalled in that art which they consider more practical, more manly and better suited to the habits and character of Englishmen than any other.

Fen skating may be regarded as an artistic pastime, an athletic sport, and a practical means of locomotion. Unfortunately, its practice is limited by circumstances and beset by some difficulties. Ice, of considerable thickness and in extended sheets, such as nature can alone furnish, is needed for its exercise, and in this climate nature is somewhat niggardly in her supply of this requisite. Enthusiastic skaters, (and who that has acquired the art is not enthusiastic?) are inclined to repine at the hard fact that a year which affords five or six weeks of good skating only occurs once or twice in a decade, and that in average years the number of available days can be counted on the fingers. Nature however is not quite so niggardly in this respect as some might suppose, and our climate in comparison with other

climates is not so unfavourable. It may console the reader to know that for the past 40 years, (omitting one in which he was in a hot climate) the writer can only remember one year in which he had no skating, and even in that year he might have had one day at least if he had been more vigilant. Colder climates than ours have of course, more ice, but in them skating is very constantly hindered by the heavy falls and the persistency of the snow. In Canada by constantly flooding the rinks in a climate where the frost can be relied upon to do its duty each night, and in various parts of Europe, as at Christiania and St. Moritz, (Engadine), were care is taken to clear the ice, skating can be secured through many months; but even in such localities half the pleasure and all the sense of unbounded freedom is lost. Holland no doubt is a good skating country, but having visited Holland for the purpose of skating, and made special enquiry in relation to skating there, we question if the inhabitants of the Hague, Amsterdam, Groningen and Dreuthe, have many more opportunities for enjoying this pastime than those of Southey, Ely, Welney or Spalding, though it must be admitted that they have a wider field when an effective frost does set in.

The fact that skating opportunities present themselves each winter, but that they are so few and casual that they must be at once seized, makes it desirable that the public should be in possession of such requisite information concerning how to learn to skate, what instruments to use when ice is to be found, and how best to make use

of it when found, as can be presented in a concise form. This need it is our endeavour to supply by the publication of this volume. One chapter will be devoted to the History of skating, and in this will be included some account of those skaters who were from time to time most famous for speed, and of the races or "matches" in which they distinguished themselves. In that chapter we shall endeavour to give some estimate of the speed of skaters as compared with other athletes, etc. In a third chapter the art of skating will be treated of, in which we shall endeavour to give such simple directions as to the kind of skates to be used, the method of fastening them to the feet, and the readiest way of learning to skate as may aid the beginner. To these will be added some suggestions as to the best means of clearing the ice from snow, etc., sweeping and using a course, and the sports that are most suitable to the smooth slippery surface. The Geography of skating including a map of the fens and such notes as are likely to aid the traveller and render his excursions safe and pleasant, will occupy the concluding chapter. The authors are very sensible that the information they furnish must in many respects be defective, but they trust they have taken due pains that it shall not be misleading, and hope that readers may appreciate this, as we believe, first endeavour to collect and present to them some epitome of facts connected with so interesting a subject, concerning which there exists in some quarters the wildest and most erroneous views. Perhaps in concluding this introductory chapter we may

be allowed to commend skating as pre-eminently desirable among athletic sports. All athletic and competitive sports are worth encouraging for the keen pleasure which they give, which pleasure is perfectly innocent. We may, however, well claim for them higher uses and results. They have prevailed most among those races and in those ages which have exercised the largest and noblest influence on the rest of the world. This is sufficient to show that energy so expended is by no means thrown away. With national pride we may note that such sports are peculiarly characteristic of the English people. Their practise is far more general among us than among any other people. It is evident that their highest uses are directly proportional to the wideness of their diffusion. When such sports are confined to experts and their practise either enforced or wholly mercenary, such sports exhibit their worst features, as in the case of the Gladiators of Rome in its decline. When however all classes of the community heartily join in their exercise they become civilizing instead of brutalizing, ennobling and not debasing. There can be no doubt that such sports while they relieve the monotony of the poor, act as strong correctives to the habits of sloth and luxury, and the effeminacy and dissipation towards which wealth and leisure tempt the rich.

Now there is no sport which while it lasts, is so open to all as skating. A few shillings will fully equip the artizan or labourer for the pastime and the greatest wealth cannot purchase for its owner any advantage over

him. Women as well as men, young children and veterans, all enjoy the recreation. Athletic sports in general and this sport in particular have a tendency to encourage temperance, a healthy tone, and maintenance of the body in that high state of efficiency which makes it a fit instrument of the mind. To this effect we have the highest and strongest testimony. Klopstock, even in his old age rejoiced in skating, and wrote lyrics in its praise declaring that it could call back that warmth of blood which age and inactivity had chilled. Goethe, the German poet says: "It was while abandoning myself
"to these aimless movements that the most noble aspira-
"tions, which had too long lain dormant within me, were
"re-awaked; and I owe to these hours, which seemed lost
"the most rapid and successful developement of my
"poetical projects." The senior wrangler who was more decidedly pre-eminent over his competitors than any other, told the author that he owed not a little of his pre-eminence to the fact that between the three and the five days of his examination he enjoyed a week's good skating. Women are especially indebted to this graceful and healthful pastime. Those interested in education and hygiene have at length discovered that open air exercise is as essential to girls as to boys, and to women as to men. The activity of English maidens and the persistent bloom of our matrons is proverbial, and the connection between them evident. Nevertheless, there are but few sports in which ladies can join with such freedom and which are so totally unobjectionable as skating.

Multitudes of both sexes and all ages have confessed that a few days' skating have so stimulated the functions of the body, that they have enjoyed thereafter weeks of such healthful and joyous life as they had previously never experienced. It is with unfeigned delight that we find that of late years that fashion and custom which exercised such tyrannous control over the fair sex now both permit and enjoin them to skate.

When the author was young, his sisters were almost the only ladies of his acquaintance who practised the art; now there is scarcely a girl in her teens who has not tasted a pleasure so keen that we quite hope not even Mrs. Grundy, or Lady Tippings will persuade her to abandon it for the rest of her active life.

This sport is also peculiarly desirable, because it occurs when other sports are not to be had, and at a time when many cannot pursue their ordinary toil. Thousands of agricultural labourers have the dull days of December, January, and February brightened to them, and the restlessness and despondency which takes hold of men out of work relieved by skating on the fen rivers, washes, and dykes. Doubtless, Satan would find something more mischievous and injurious for idle hands and feet to do if this sport were less popular. Excellence in this sport depends quite as much on strength as agility, hence a somewhat thick-set frame and hard rough work by no means unfits a young fellow for pre-eminence in fen skating. In winter Vulcan leaves his club-foot in the smithy, and on the ice at

once assumes the speed and grace of wing-footed Mercury. The fen farm labourer scrambles out of his clay pit to meet on the Cam the slim student of the University on more than equal terms.

This leads us to notice another conspicuous commendation of skating. It is of all others a social sport. Those who meet on the ice must meet absolutely on a level. People of all ranks, professions, creeds, and parties are brought in contact with one another on the smooth surface under conditions of pleasurable excitement which make them communicative. Every skater must recall how those who have lived all through the year in the same town or community without recognizing one another find the opportunity for a few friendly words on the ice. It is something in this selfish, mercenary world, to snatch a few hours where the primary estimate of men depends on something other than the possession of wealth or social position. The ball-room, the cricket-field, and the hunt have been lauded on the same grounds, yet a moment's reflection will convince how much wider, simpler, and purer are the conditions which favour sociability on the ice. It may, perhaps, be said that the foregoing remarks apply to skating rather as a pastime than as an athletic sport. The question yet remains whether the organization of races, and the high rewards to successful competitors, which have occupied so much of the attention, and taken up so much of the funds of the National Skating Association, are desirable. Young and ardent spirits,

however, will long for excellence, and such tests and proofs of excellence as races can alone secure. Rewards freely offered and fairly won, can scarcely be objected to by the strictest moralists. Such rewards give satisfaction both to the donors and recipients, and have nothing in them akin to betting upon, or backing, the men. Open competition in athletic sports has, no doubt, a tendency to cherish a manly spirit and a love of fair play ; and these moral qualities play no insignificant part in sweetening human life and rendering the relations of men to one another more tolerable. Unfortunately, however, such races have in other sports been found to stimulate and give occasion to betting, a practice which has been found to have a most damaging influence on all sports. Not one of the advantages we have mentioned in connection with sport but has been injured by betting. In many cases it has already destroyed fair play and caused the most mean and dishonest practices. Unfortunately, too, betting men, by the strange blindness of the public to the bad effects of their operations, have been held to be the *patrons* of sport instead of its worst enemies. "Sporting men" and "betting men" have been considered synonymous, yet, surely, he is not a true lover of sport who has so little relish for it that he cannot enjoy it unless it enables him to extract the money from his neighbour's pocket. Of course, betting is inevitable, and the promoters of races cannot be held responsible for it, but it is to be regretted that popular sentiment instead of

frowning upon it, absolutely invests the betting man with spurious importance, and enables him to carry out his selfish schemes beneath a forehead of brass and regardless of decency or decorum. A vulgar fellow, whose best idea of fair play is to be able to take advantage of some raw novice, less acquainted with the chances of the race than himself, to fleece him of his money, thinks he has a right to break through the ropes and shoulder out of the way the guardians of the course on the strength of having laid a "fi-pun-note" or a "tenner," on the "event." The inevitable effect of high betting will be to corrupt the races, for, unfortunately, men are more easily "got at" than horses are. Every lover of "fen skating" should do what he can to discourage this practice. If it cannot be suppressed entirely, it may at least be prevented from being protruded shamelessly on the public, thus robbing them of all confidence in the genuineness of the races. To the credit of fen men be it said, that though we have been present at hundreds of heats during the last thirty years, we have never, but on two or three rare occasions, seen any fen man try to get an unfair advantage, either in starting or turning, and we believe, though there may be some exceptions, as a rule the racing has been very genuine. This last remark will, doubtless, expose us to the criticism—that we must be very "green." It is, however, one of the worst results of the practice of betting, that all faith is lost in the uprightness of men whom, however high their character

may be, it has become the interest of speculators to corrupt. We are convinced that the widespread suspicions and conjectures about the frauds and tricks of the fen runners are derived from other arenas where betting more widely prevails, and are rather an evidence of the unscrupulous cunning of those who express them, than of any foul play on the part of the men themselves.

We should deeply deplore, if, in the endeavours of the National Skating Association to give more prominence and definiteness to the sport, it should at the same time unconsciously cause it to be made a vehicle of betting and rowdyism.

The Association has exercised its utmost vigilance to secure the genuineness of the races and the honesty of the men, and, we believe that, hitherto, their efforts have been completely successful.

By Rule 22 concerning the Championship, the Association declares that "no person shall be eligible to compete for the Championship, or at any meetings under the National Skating Association Rules, or receive any reward from the Association, or from the promoters of such meetings, who shall be proved to the satisfaction of the committee to have bought, or sold, or vitiated a race by any unfair conduct since the establishment of the Association." They have no reason to suppose that this Rule has been violated in any case.

We regret to find that there is an opinion abroad that it would be better to apply the system of handi-

capping to our races. We are totally opposed to this practice, because it would, we think, have a tendency to encourage betting, and to induce the men (if we may be allowed to use a coursing phrase) to run "cunning." Handicapping, we believe, directly discourages speed, and promotes what is erroneously called "sport." The only two reasons we have heard urged in its favour are the following :—

First : by the present system too much money goes to the "champion" and too little reward is given to men who, though of great merit, are not first-rate. It may be said that this objection has been already met, by returning the entrance fees of all competitors who come to the scratch, by giving a reward to all winners and securing substantial prizes to the 2nd, 3rd, and 4th men in each race. The awards have been distributed much more widely than is the case, we believe, in any other contests where considerable numbers compete. It seems quite fitting that the reward of the champion, whose harvest cannot be prolonged over very many years, should be in considerable excess of all others ; and a scheme which would reduce his chance, and that of all other good men, to a dead level with those who have no excellence whatever, is an insane project for encouraging speed, and yet the more thoroughly handicapping is done, the more sure are we to arrive at this result.

Another reason brought forward in favour of handicapping is, that until this is done, we shall never ascer-

tain the greatest speed of the best men. There is an opinion abroad that the best skaters hold a considerable reserve of speed, and that they have such a perfect understanding with one another that they never put it forth. Now, this notion is, we think, perfectly erroneous. There is not any evidence in its favour. The time records give full proof against it. Of course, we do not mean that every skater fully extends himself in all races, but there is no difficulty in arriving at the shortest time in which men can skate the distance. If this were so it could be easily ascertained by expedients which do not involve the objectionable features of handicapping. It would be easy to give an additional substantial prize in each race for the shortest time, or to any skater who should beat the shortest recorded time.

The National Skating Association has been careful not only to discourage fraud, but even to remove temptation thereto. It has been their endeavour to give such ample rewards to the best skaters that they may be satisfied, and thus, by increasing their legitimate rewards, to cause them not to hanker after illegitimate gains. In doing this, however, the Association has been met by other difficulties. Of course, to reward so large a number of men and convey them to the place where they can exhibit their prowess, costs much money. It is true that the public has responded not illiberally to an appeal to defray their expenses, but still, the funds are scarcely adequate. An easy device to

supply the deficiency is to have the racing on a ground where gate-money can be charged, and applying some portion of this to the expenses so incurred. But the placing of the races on this commercial basis has excited the cupidity of some of the proprietors and occupiers of land. Thus, some lands whose owners and occupiers once held up water on them with the simple and laudable desire of gratifying their neighbours, now refuse to do so unless the N.S.A. give them some substantial sum. Others make it so much a matter of hard bargain that it is difficult to make terms with them. We trust this cupidity will not prove catching, and that nobles and squires, owners and occupiers, who have hitherto admitted the public to their waters, will still consider that this is a case in which "noblesse oblige"; for no act of generosity is more productive of happiness than the unlimited hospitality thus accorded to the public.

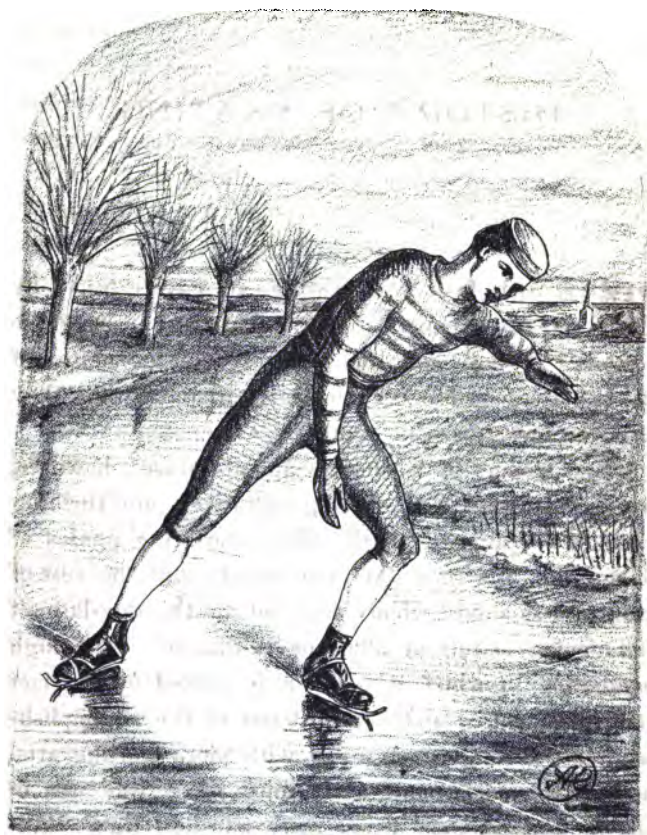
Perhaps the reader may regard the foregoing remarks as a digression, for, after all, we are no further interested in the National Skating Association than in so far as it promotes skating, and racing is but one of the incidents of fen skating, and by no means that which most engrosses the attention of those most devoted to the art. Whether that Association succeeds or fails in its praiseworthy efforts, hoar winter will again visit our meres and meadows. Again will the moon, Medusa-like, look down and knit the unstable waters of the Ouse, Nene, Welland, and Witham, with

all their fen tributaries, into firm highways. Again will files of hardy fen-men, strong, steady, and graceful in their motion as the strings of wild fowl which fly above them, track those smooth highways with flying feet. Again will Ely Cathedral and Boston Stump, looming huge through the silver mist, welcome them on their way. Again, on Cowbit Wash, 'or Bury Fen, or Wroxham Broad, troops of joyous children, merry damsels, eager youth, aye! and stately matrons and sturdy veterans, too, will meet in the midst of mirth and joy, and if we can, in any way, be instrumental in helping them to such joy as we have ourselves derived from skating, we shall be content, without thanks, and appeal to the Heavens, in the words, though not in the spirit of the song of the melancholy Jacques :

Freeze, freeze, thou bitter sky.
That dost not bite so nigh
As benefits forgot :
Though thou, the waters warp,
Thy sting is not so sharp
As friends remembered not.







HISTORY OF SKATING.

THE early history of skating can only be traced by means of such casual references to it as are scattered through our literature. From the nature of the case these references must be infrequent, and they are even rarer than one would have supposed.

That wonderful Scandinavian literature, however, whose poetical myths, stirring narratives, and thrilling romances treated of all the most interesting phases of human life, at a time when the literature of the rest of Europe was almost wholly confined to the dog-latin of the monks, is full of allusions to this art. The high estimation in which it was held is proved by the fact that their chiefs and heroes boast of the accomplishment of skating as on a par with more warlike arts, among a people, and at a time, when war was in the highest repute. From these allusions Runic antiquaries assign to skating, even as it is now practised, a very high antiquity indeed, stretching backward for sixteen or seventeen hundred years. These researches exhibit a curious analogy between the stages of pro-

gress in skating and the advances of civilization, as shown by the nature of the instruments used. Thus, as anthropologists tell us of a stone, a bronze, and an iron age, defined by the materials of which men's weapons were made, so we are told of a wooden, a bone, and an iron age of skating. Of course, our space will not allow us to examine these references to skating derived from the frozen north, even if we were sufficiently acquainted with the subject, but these very interesting allusions must be read with caution. It is evident that while some refer to real skating, not a few only apply to travelling with snow shoes, over the frozen surface of the snow as it lies on the earth, which is a practice still very prevalent throughout northern Europe and Iceland, and has been introduced, as a very necessary and effective means of locomotion, into Canada. Keeping in mind this distinction, it may be doubted whether skating ever had a wooden age. It is probable, however, that progression by snow shoes was the more ancient art, and that snow shoes suggested the idea of skates. The trial once made it would soon be found that bone was a better material than wood for gliding over ice, and this material would be as easy to obtain as wood by people who lived so largely on the products of the chase, and had always by them a surplus of bones. Concerning the bone age of skating there can be no doubt. We have abundant evidence of its existence in our own country and in Scotland. In the British Museum—and those of York, Edinburgh,

Saffron Walden, and many other places—there are bones which are supposed to have served as skates. These usually are formed from the cannon or shank bone of sheep or deer, and give signs of having been either ground or worn down on one side. In the Cambridge Museum there is a bone consisting of the combined ulna and radius of the red deer similarly worn, or ground on one side. This was found in the fen, and if used as a skate, proves that skating was prevalent there before the red deer was driven from those parts. It has, however, been often too hastily assumed that these worn bones with holes in one end were true skates. It is abundantly proved that such bones were constantly used as runners for sledges right up to quite modern times, and are even still used in the fen. These bones were attached to sledges constructed so as to allow the fowler to propel himself over the surface of the ice and to approach wild ducks swimming in some still open water without disturbing them. These sledges consisted of a simple framework on which the man lay prone, and another upright framework in front, into which a screen of reeds was stuck, the muzzle of the long-duck gun protruding between the reeds while its padded end rested against the gunner's shoulder, who propelled himself by two short sticks shod with iron spikes and held in either hand. These combined sledges and stalking-horses were, no doubt, very effective when Whittlesey, Ramsey, and Ugg meres were still undrained, and they still exist, the writer having seen one this year

on the Counter-wash Drain. In order to distinguish these runners from the skates one must look for the means of attachment, and tried by this test a large proportion of the so-called ancient bone skates must yield their claim to be so styled. That real bone skates did exist, however, is put beyond a doubt by the often-quoted sentence taken from Fitzstephen's "Description of the most noble City of London; Fitzstephen was a clerk to the Archbishop Thomas-à-Beckett, and was witness of his assassination. His work was written in Latin and published about the year 1180. One of the earliest translations gives the passage referred to in the following words:—"When the great fenne or moore "(which washeth the walles of the citie on the north "side) is frozen, many young people play upon the yce; "some stryding as wide as they may; some doe slide "swiftly; some tye bones to their feete and under their "heelles and shoving themselves by a little picked staffe "doe slide as swiftly as a bird flyeth in the air or an "arrow out of a crosse-bow." This passage is most interesting as it shows the very imperfect state of the art, though it demonstrates its existence. It also shows that which is equally evident in the present day, namely, that a slightly accelerated speed given to the human body so imposes upon the sense and the imagination as to cause it to be vastly over-estimated. Exaggerated as the last statement as to speed may appear when applied to a motion which must have been vastly inferior to that now attained upon skates, it is

scarcely more so than many statements one hears now-a-days and which still pass current as true.

It can hardly be supposed that the iron age of skating ever was directly developed from the bone age, though the use of bones as skates can be proved to have had a very wide range and was of long duration. At least, if this were the case, the development was not effected in the British Islands. There can hardly be a doubt that skating, as now practised, upon iron or steel keels, was introduced directly from Holland, where it had existed many years before, and where it had played on several occasions no unimportant part in History.

Thus, in 1572 (the time of Queen Bess), the Dutch patriot fleet was frozen in the waters of the Y. Don Frederick, the son of the terrible Alva, sent a body of picked men across the ice to capture the vessels, but the Dutch had cut a trench round the whole fleet, and when the baffled Spaniards beat a retreat, a body of Dutch musketeers sallied forth on skates, darted after them, and utterly routed them, leaving many hundreds dead on the ice. " 'Twas a thing never heard of before to-day," wrote Alva to Philip, " to see a body of arquebusiers thus skirmishing upon a frozen sea." Alva was so struck with the power of the Dutch on skates, that he immediately ordered seven thousand pairs of skates for his own soldiers, and regularly drilled them to the exercise, and probably found the art was not to be acquired in a year.

When Haarlem was besieged, so long as the Haarlem

mere was frozen, the Spaniards could not prevent men, women, and children, skimming over the surface and bringing provisions and arms to their friends, and it was not till after the frost broke up that the town could be starved.

If it should tend to recommend the art of Fenskiating to all parties and classes in England, it may be stated that the art seems to have been introduced from Holland through two different channels, the one aristocratic and the other democratic. The adherents of the Stuart family, even the members of the Royal family itself, seem to have profited by their "travels" in the Netherlands so far as to acquire some proficiency in this, its special sport. James II. was a good skater, as is shown by the following passage from Pepys's Diary : " Dec. To the Duke and followed him into the park " where, though the ice was broken and dangerous, yet " he would slide upon his skates, which I did not like, " but he slides very well." This graphic picture of James at his sports, fearlessly striking out on the dangerous ice, while his fussy adherent quaked on the shore, is surely more pleasant than any which more serious history affords of that ill-fated Prince. Evelyn also records how, a fortnight previous, their majesties beheld " the wonderful dexterity of the sliders on the " canal at St. James,' performed by divers gentlemen " and others with skates, after the manner of Hollanders—with what swiftness they pass, how suddenly " they stop in full career upon the ice." Lord

Macaulay says of Monmouth, son of Charles II., that he had taught the English Country Dance to the Dutch ladies, and had in his turn learned from them to skate on the canals. The Princess (afterwards our Queen Mary) had accompanied him "in his expeditions on the ice; and the figure which she made poised on one leg and clad in petticoats shorter than are generally worn by ladies so strictly decorous, had caused some wonder and mirth to the foreign ministers."

Monmouth, when he revisited England, had other matters to engage him than skating, and he was never permitted to add to those other English sports, in which he was said to be a proficient, the newly-acquired one; but, doubtless the accession of Dutch William and Queen Mary (Monmouth's cousin, and former companion), to our throne would give a stimulus to this art. The Democratic channel through which skating was introduced from Holland to the Fen country was, probably, far more direct and effective than that which proceeded through Kings and Courts. The refugees who fled in such numbers from the fury of Philip and Alva, and took refuge in our Eastern Counties, brought with them this pastime as well as more lucrative arts. That the art was introduced by Flemish or French refugees is rendered almost certain by the word "pattens" being applied to skates throughout the fen district. "Patiner" and "patin" being the only words which are used in France at this day to express the verb "to skate" and the noun "skate." It is probable also, that, that

irrepressible Dutchman Vermuyden introduced into the very heart of the fen, Dutch navvies to execute his great drainage works, and some of them settled permanently in a country not unlike their own, and equally suited to the mercurial art of skating. By whatever channel the Dutch art was introduced it became very popular in its new home. The art, however, became somewhat changed to suit the temperament and habits of its new votaries. For though the art may be well called a mercurial art, and skates may be well compared to the winged sandals of the courier-god, the Dutch people have not been esteemed mercurial. While the Dutchman delights to sail along with a long pipe in his mouth, and the Dutch woman is constantly to be seen, as the Dutch painters delight to depict her, plying her knitting needles as she wends her winged way to market; the more ardent English devote all their energies to the attainment of the highest speed, and their sport became competitive. Races became matters of the greatest interest, and if these were taking place, no matter how remote the place of meeting from populous towns, or how completely involved in the sparsely-peopled fen country, thousands of spectators assembled and witnessed the sport. It has been conjectured that the difference in the styles of "running" between the Dutch and the fen folk is to be accounted for by the fact that the latter, being compelled to reach the main drains by means of the capillary ditches of which we have spoken, were obliged to run in a straighter course

and could not roll so far on the outer edge and deliver the stroke so freely as the Dutch could in their wider canals. We think, however, this explanation unsatisfactory, and the difference is really, only a reflection of the more eager and ardent temperament of the English, who are willing to curtail the period of rest and ease in the stroke if thereby they can gain any more speed at the expense of much muscular exertion.

The trysting-place, which of all others was the most attractive and the most suitable for these races was Whittlesea Mere. It is with sincere regret that we have to transfer the short account of this most delightful skating area from our chapter on Geography to this place; for Whittlesea Mere and all its associations have, alas! become matters of History. This sheet of water, was considered one of the three wonders of Huntingdonshire, as the following local rhyme indicates:

“Yaxley stone mill,
Glatton’s round hill,
And Whittlesea Mere,
Are the three wonders of Huntingdonshire.”

Though of no great size as compared with lakes of the mountain districts of Cumberland and Wales, it was the largest lake to be found in the South Eastern half of this country. Its depth scarcely exceeded five feet any where, and its shores were so flat that its extent greatly varied with the wetness or dryness of the seasons. It was approximately two and a half miles from east to west, and one mile and three-quarters at its greatest

extent from north to south. Its summer aspect, when the great copper butterfly hovered over its fringing flags and flowering rushes, and the swallow-tail skimmed over its wide margin of sedge, is beyond our province; but the writer may recall and record the keen delight with which he visited its ice-bound surface while yet a boy. How keen was the pleasure of skirting its indented shores beside the tall reeds whose golden jointed stems bore their bronze tassels high above his head. How well he remembers startling the brown crested bittern from among the bulrushes and clubrushes, and chasing the huge pike which darted and doubled beneath the transparent black ice in terror of the monster who persistently appeared in their zenith, till at length in despair they plunged into the mud, stirring it up to cover their retreat. The writer also recalls the fact that a race was going on in the centre of the mere while he was exploring its outskirts, but he totally forgets who were the winners and all the details, except that after the sterner sex had struggled for the mastery some country lasses competed with one another and ran both resolutely and well.

The only notice of this glorious arena as a skating ground in "The Fenland; Past and Present," which is a standard work, published in 1878, and full of interesting and reliable information on other matters, is contained in the following sentence. "Here some of 'the fastest 'running' in the world might be seen, and 'old men still delight to tell how Turkey Smart skated

“or ‘ran’ his mile in two minutes and two seconds; “and how Gittan (fine old British name) of Nordelph, “ran a mile in two minutes and twenty-nine seconds.” Now, this statement is erroneous in every particular. The recorded exploits are inverted. *Gittan*, which is the right spelling of the fine old British name, flourished about 1820 and a few subsequent years, while Turkey Smart came to the fore in 1854. Turkey Smart was one of the best and most powerful skaters who ever set iron to ice, but he never performed the fabulous feat assigned to him. It is beyond the unaided power of mortal man to accomplish such a feat, and if “old men” ever were so far in their dotage to make the statement, they would have chosen some more remote and mythical hero to assign it to, for Turkey Smart, aged 51, still runs in our races, and runs in good style too, though, alas! not with his old power. He is still able, however, to surpass the best men of Birmingham, as he proved at Edgbaston Pool this very year. We very much doubt whether Turkey Smart ever set foot on Whittlesea mere—he certainly never distinguished himself there, for, before he beat the Southery men, and sprang at once from obscurity into pre-eminence, Whittlesea mere had ceased to be, and its dry bed was good “winter” land, bearing wheat.

The shallowness of the mere, its flat sides, from whence no mountain gusts descended, the dense high screen of rushes which defended it from lateral winds, and its complete exposure upwards to the clear skies of winter,

caused its smooth bosom to be soon visited by the frost, in whose close embrace it lay, while other lakes were still unwoo'd and "fancy free." But, alas! these very features excited the cupidity of the "land grabber." "Restless ownership" perceiving that its greatest depths were still above low water-mark, in 1851 carried a drain into it and completed their work by erecting an "Appold" pump, which keeps it dry. "O what a fall was there, my countrymen!" It is useless to repine. The strings of mallard flying eastward at even with outstretched necks, will scan the level moor in vain for the silvery gleam of the mere into which their ancestors used to dash at night and then sleep in silence. They must ply their weary wings for another hour till they reach the Norfolk Broads. The pintail and the long tail, the golden eye, and the goosander, and all the rarer visitants which once found here a transient resting place must fall to other guns than those of the hardy fenman. Worst of all, these Fen-men themselves, must seek other less suitable and less reliable arenas whereon to prove their prowess in skating.

In giving, as we shall now endeavour to do, some consecutive accounts of the men who have had the greatest reputation as fast skaters, and the races in which they distinguished themselves, as well as some estimate of their speed, we must crave the reader's indulgence.

From the instance already given of looseness and inaccuracy of statement where we might have expected

greatest exactness, it will be seen how difficult it is to get reliable information. This is due, in a great measure, to the instability of our climate in which the appearance and continuance of the frost cannot be relied upon for a single day; hence, matches had to be made, competitors brought together, the course marked out in a hurry, and that which is done hastily can seldom be done accurately. These races, too, occurred in obscure country places where no good reporter could be found to take notes. The courses, too, even when well marked out, could hardly be maintained from the pressure of the excited crowds, and they had often to be many times shifted to avoid the encroaching water, or the breaking-up of the ice. In giving the statistics we shall call attention, if possible, to every doubtful point, so that we may not mislead; and it is not our intention to give any but the most remarkable events, or those which have something characteristic about them. Our fragmentary chronicle only commences, and hardly commences, with the present century, and all is within the memory of "the oldest inhabitant," so that our statements, some of which can hardly fail to be inaccurate, we may hope to have corrected or verified.

It is a curious feature in the records of fen skaters how frequently the same family names recur. From this and other circumstances, we gather that excellence in skating is an hereditary faculty. To start with, John, William, and Matthew Drake, three brothers, spoken of in 1823, "as still living in the town of Chatteris,"

and presumably old men, were stated to be unquestionably the best men of their time. It is questionable whether Francis Drake, an officer of the Bedford Level Corporation, of whom Mr. Heathcote records that he, in 1799, put on his skates at Whittlesea Mere and crossed both the Middle and South Levels to Mildenhall without taking them off, was a relative of these men.

On the 14th June, 1814, at Ramsey, Youngs of Mepal (not Young of Nordelph, who flourished ten to fifteen years later) beat the "famous" Thompson of Wimblington with apparent ease. This Youngs was then considered the "champion," and beat Hicklin of Crowland, winning a silver cup at Chatteris, and also Dyalls for a prize of £20 on Whittlesea mere. The year 1822-3 was a famous year in skating annals. Whittlesea mere was strong enough to bear carts and donkeys, and booths were erected upon it.

In the early part of this season a very interesting and characteristic race was run at Crowland between four of the best of the fen skaters, two of them were from Crowland and two from Nordelph, and old men still speak of this race as the grand contest between the North and the South Fen men. Both districts were well represented, and the contest was a close one; Chas. Staples, of Crowland, beating Young by three yards only, while John Staples, the other representative of Crowland, was beaten by Gittam. In the final heat Gittam beat C. Staples thus deciding the contest in favour of the South Ouse district..

The most noteworthy race of the year 1823 took place at Carter's Bridge, on the Forty-foot Drain, near Chatteris, on the 14th of January.

Perhaps, as this may be taken as a typical race, it may be as well to notice here the customary arrangements under which these contests were usually conducted. The committee which was appointed, and was in charge of the prize fund, used to select the sixteen men who, in their judgment, were the best skaters. There was no practical difficulty about this, as the best men would have acquired a reputation, and there was always a bias in favour of young rising men or strangers if it was thought that they had any chance of winning. These sixteen competitors were paired, either by lot or by the arrangements of the committee (usually in the former method), and ran against one another in eight races, which made the first series of heats and resulted in producing eight winners; these eight were again paired as before for the second series of heats. The four winners which, by a process of natural selection, still survived, were paired for the third series of heats, and then the final heat culminated in the survival of the fittest.

The races were run over two miles, this being considered the normal distance at which both speed and endurance could be tested. The course was half a mile long, with a barrel or definite fixed bourne at each end, and a series of sods of earth or a line of swept snow, stretching from bourne to bourne. The men started

one on each side of the starting bourne, and each man kept to his own side of the said line, turned round the bourne at the far end and returned by the other side by which his opponent had started, and going twice round such a double course the two miles was completed and the starting point was also the winning post. Of course, by this procedure, the competitors must meet and pass one another three times. It was usual to give each winner some reward; the rewards of the second and third series of heats being larger than those of the first, and the surplus going to the final victor. This arrangement is open to many objections, but it has so many practical advantages that it has held its ground despite them all, and can scarcely be improved upon. The most obvious objection is, that by this process it is only the best man whose proficiency can be ascertained. His competitor in the final heat may possibly be very inferior to many who have been previously run out. Indeed, as the two men in the final race must have run three times before, this contest may be influenced by the severity of the previous races, and this may even cause the palm of victory to be snatched by the man who is really not the best skater. The pairing, too, sometimes creates complications which affect the race. On the other hand, this arrangement secures almost perfect fairness between the competitors of each race, which could hardly be effected unless each traversed absolutely the same ice. The spectators along the course also have the gratification of seeing each man

pass them four times, and for the record of time and decision of the judge there is very definite advantage in having the starting point identical with the winning post. We shall have to recur to some of these points, but it was necessary that we should explain the method of procedure here, in order that the reader might understand the details and incidents which may arise out of it in the events we have to record. The following formula expresses the results of the race which came off on Tuesday, 23rd January, 1823.

FIRST HEATS.

Varlow, of Benwick	beat	Drake, of Chatteris.
Green, of March	,,	Burgess, of Whittlesea.
Terry, of Wisbech	,,	Hare, of Littleport.
Bradford, of Farcett	,,	Middleditch, of Reach.
Young, of Nordelph	,,	Cave, of Sutton.
Gittam, of ,,	,,	Angood, of Chatteris.
May, of Upwell	,,	Berry, of Ramsey.
Richardson, Whittlesea	,,	Minnot of Manea.

SECOND HEATS.

Green	beat	Varlow.	Bradford	beat	Terry.
Young	,,	Gittam.	May	,,	Richardson.

THIRD HEATS.

Bradford	beat	Green.	Young	beat	May.
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FINAL HEAT.

Young ... beat ... Bradford.

The graphic representation of this race, which was taken from a sketch by a local artist, and published in the "Annals of Sporting," forms the frontispiece of this work. It represents, not the final heat, in which Young (the rising sun) beat Bradford, of Farcett, but one of the second heats, in which Young beat Gittam.*

* The frontispiece is a reduced copy of a coloured picture given in the Sporting Annals of 1823. The original picture was painted by Mr. CROFT, of St. Ives, and it is referred to as follows :—The match here represented took place on the Forty-feet River, which leads to Ramsey, and no place could be better calculated for such an amusement, as the banks on both sides rise in the form of an amphitheatre, about fourteen feet above the level of the river, and afford very excellent accommodation to numerous spectators, who lined both sides of the banks as far as the eye could reach. The bridge, which is of brick, lies, as is represented, on the road between Chatteris and Doddington. Fig. 1 and 2 represent Young and Gittam, at the winning of their race. Fig. 3 is Mr. J. Smith, with the book and flag (which was yellow), in the act of calling for the next two runners (Richardson and May). Fig. 4 is Mr. Ward, who held a pink flag at the winning end. Fig. 5 represents a lighter, which lay at front of the bridge, in which the Chatteris Band was placed, but which moved down the left bank, as the course was lowered down the river by the breaking of the ice. Fig. 6, the Wisbech Day Coach, having stopped on the road parallel with the bridge, which leads to Wisbech. Fig. 7 is an Old Man selling gin, which he calls the "water of life;" the bridge and both sides of the river were crowded with company. Gittam is represented in flannel drawers, as he ran, with a silk handkerchief on his head; and Young, the winner, wore a coloured India silk handkerchief. Men were employed to run up and down with ropes as seen at Fig. 8, to keep the course clear, which was hardly possible, from the crowd of people assembled.

This, no doubt, is a tribute to the reputation of the latter, who, till then had been considered champion. Gittam and Young, almost always mentioned in the same breath, are still the heroes of the veteran lovers of the sport. Those who have seen them skate can scarcely be brought to admit that any subsequent runner has attained to their style and speed. Judging from the testimony of their contemporaries, who are now fast passing away, we may conclude that Gittam was the older man, and that the claims of his rival were only fully established on this very occasion. As we have stated, in the previous year Gittam defeated Chas. Staples, who, in a preceding heat had outrun Young, and it is probable that he had had a victorious career during several previous years. He was a larger and stronger man than Young, though not above average height. His distance was considered to be one mile, though he constantly ran and won in two-mile races. He was once beaten over a half-mile course by Ayres, who afterwards kept the "*Lamb and Flag*" at Welney. The writer has more than once had to take refuge at that little Inn after a ducking in the Old Bedford, and was often favoured with an account of this race by the winner. The race was run for a wager, the course was straight and down wind, and the ice was hard, black, and in magnificent condition. The competitors had a flying start, and Ayres got about a half-yard at the commencement and held it throughout. The contest, however, was so severe that both men fell in at the

winning-post from the combined effect of eagerness and exhaustion. Ayres was at that time a slim youth, and it is probable that the conditions were highly favourable to him, as we never read of any performance of his over the ordinary two-mile course.

Young was, at the time of the Chatteris race, about twenty-four years old; he was short and small. He is described as "one of the completest and most graceful skaters in the kingdom." He needed good ice for his best performances. His strokes were very long, covering about ten yards, and he appeared to go with great ease. His distance was two miles, and at that distance he held the pre-eminence for at least six years, for we find him winning a great race at Wisbech in 1827. In 1830 he was beaten by John Charles of Stretham by about twenty-seven yards, though, even then, it was regarded as an accident. He was then thirty-two years old, and had probably begun to decline in speed. His performance on the occasion represented in the frontispiece was most creditable, and his triumph much impressed the spectators, for, it will be observed, that he beat in succession (1.) Cave, who, in the same year had been a winner both against Gittam and May;—(2.) Gittam;—(3.) May, who had beaten him on the previous day;—(4.) Bradford, who had run all but a dead heat against May in the final race of Monday. In connection with this race in 1823, several circumstances are worthy of note, as showing that history repeats itself in the chronicles of performances on the ice as on

all other arenas. Thus, in accounting for the fact that Young so easily turned the tables on May, who had beaten him on the previous day, the failure of the former on the first occasion was attributed to "lush," and he was warned in a friendly manner by the chronicler to abstain in future from such excess. Such a warning is not altogether out of place in the present day, and it will occur to some that subsequent failures in modern times have been attributed to the same cause. Again, the race between Young and May was considered to be the fastest, and to have been performed in 5 min. 2 sec. As the course was said to be a measured two miles this record is astounding to those who have taken the times of races in recent years. The explanation, however, is easily found, and a similar one will account for many records of extraordinarily quick times on other occasions, one of the objects in the picture being thus referred to: "5. A lighter (barge) in which the Chatteris Band was placed, but which moved down the left bank as the course was lowered down the river by the breaking of the ice." No doubt, as the ice was broken up by the crowd which assembled at the winning post, that post was moved and the course shortened, so that the times of the latter races cannot be compared with those of the first, and are wholly inaccurate as records of pace as the distance cannot be ascertained. Another incident portrayed is the "Wisbech Day Coach" stopping to allow the passengers to see the race. It is rather curious to reflect that such a coach was the fastest method of

transit which travellers then possessed, and in that very year George Stephenson was moving for an Act of Parliament to enable him to work locomotive engines over the Stockton and Darlington line. The question of speed was, doubtless, at that moment, the supreme object of interest to the passengers by the Wisbech Coach, but no one of them could have conjectured that there was then a scheme on foot which would produce a speed greater than any horse or man on "pattens" could emulate.

Having thus fully described a typical fen skating race it is not our intention to give the details of any others. Such races occurred, and still occur, in the fen, on almost every available day throughout every frost. A fair selection of them will be found in the official Handbook of the National Skating Association. We only give a short notice of the best men, and some noteworthy particulars concerning them. On the same ice, a week later than the race already described, six Chatteris gentlemen contended with six from March. Green, of March, was the only March man who won in the first heats, and, after beating another Chatteris man, he was easily beaten by Drake. This Drake was, probably, William, the son of old William Drake, of Chatteris, one of those brothers already referred to. It would be interesting to know whether Green was a relation of the Green, of March, who, a generation later, was known as a remarkably graceful and fast skater. John Drake had also a son John, who, for two years, was considered

the best man of his time, and this son is still living in Chatteris, being at least eighty years of age. After Gittam and Young, the cousins Drake and the brothers Staples, Egar, and Farrer, of Nordelph, had begun to decline, John Berry, a waterman, of Ramsey, won several first-class races, and then Needham distinguished himself as one of the best men previous to 1840. Needham was small and light, and had a short, quick stroke. He could beat any man over bad ice. He challenged the world in 1841. He was, however, beaten at Chatteris by Few, of Sutton, but Needham's friends considered he was not well at the time. He was afterwards beaten by T. Cockle, of Hilrow, and though he ran for many years afterwards, had to succumb to younger men. Between 1841 and 1850 no one seems to have specially distinguished himself, and it is probable that the seasons were unfavourable to skating. In 1850 Larman Register, of Southery, came to the front, and for four years was unrivalled. He was a large, tall man, with a fine, quick, but not unusually long stroke. He skated in a more upright position than most fen men. He was ably supported by men of his own town, among whom were the Porters and Butcher. It generally happened in the races of those times, in the penultimate heats, three Southery men were left in with one stranger, in which case it was very hard upon the odd man, who had to run a desperate race against his opponent, and then, if he proved the winner, to be brought against the champion,

whose previous race had been a mere sham.

Under these circumstances, it was with keen interest and delight that the public witnessed in Dec., 1854, at Welney, a race in which Smart, of Welney, defeated all the Southery men, and, finally, L. Register; never giving them a chance from beginning to end, and running in, thirty or forty yards before each of them at the finish. W. Smart, commonly called "Turkey," maintained an easy excellence for many years. He was a typical fen skater; his running was both morally and physically as straight as a fen man's ought to be. With arched back, head low down, almost between his knees, he, as Ophelia said of Hamlet, "seemed to find his way without his eyes," for onward he went without their aid. The power of his stroke was enormous. He seemed to deliver it with the strength of an ox, and from it he flung himself fearlessly forward, with no apparent support, like a bird of prey in full flight.

Smart was so pre-eminent that he needed no support or second, but he had an able second in See of the same village. See, when he first distinguished himself, had an awkward and laborious gait, but his strength, courage, and endurance were so great that he was always a popular favourite. He was reckoned so tough an opponent that he received the nickname of Gutta Percha—a substance much used at that time for the soles of shoes. He improved much in style, but, when at his best, his action could scarcely be called elegant.

Owing to Smart's excellence, who is a man of like age with himself, he was never supreme, but he was as good as any other man, and under certain circumstances much better, for the ice was never too rough or the course too long for him, and, whether losing or winning, he bated "no jot of heart or hope but still bore up and steered right onward." Years began to tell on both of these men, but they seem to have had less effect on See than Smart, and, in 1861, we find them dividing the honours and winning in alternate races. These two veterans still held on, and it was not until 1867, that either of them could be considered "out of the running." They still run with their old pluck, but, alas! not with their old speed. In the season last past, however, W. Smart defeated, at Edgbaston Pool, the best man which the populous town of Birmingham could bring against him by 250 yards in one mile. Among the contemporaries of Smart, Green of March, Wiles of Welney, and Barnes of Benwick, ought to be mentioned. They were all good men.

It speaks highly for the excellence of Smart and See that they so long held their rank as first-rate skaters. It was not till 1867, when they were both approaching forty years of age, that younger men wrested the victory from them. It was then that the men of Holme became famous, and the sceptre of triumph seemed likely to be transferred from the centre to the outskirts of the fen.

S. C. Smith and the two Sheltons distinguished

themselves first at Huntingdon. The former was a very tall and active man, and the latter were remarkably elegant skaters. Smith, after running several first-class races, soon found a rival in Cross of Ely. These competitors were at the height of their rivalry in 1867-71. At Huntingdon, on the 4th January, 1871, J. Cross beat Smith in the final heat, whereupon a match was made for £50, to be run the next day. Cross, however, refused to run on account of the dangerous state of the ice. In the same week, at Peterborough, J. S. Smith was victor, defeating Dann in the last heat, Cross having fallen and been beaten by old "Turkey" Smart. The frost then broke up and left the question of who was the best man undecided. In subsequent years neither appeared on the scene, and in 1874-5, Watkinson, who had been known as a good skater, and had skated in first-class matches ever since he was sixteen years old, became the champion, and held the championship till George Smart, the present champion, surpassed all others. Since 1878 he has been indisputably the swiftest and finest skater in England. Excellence in speed in skating is due to many causes—such as strength, style, endurance, activity; and no man can succeed on the ice racing course who is very defective in any of these points; but, sometimes, by great excellence in some one of them, skaters have become pre-eminent, though by no means remarkable in other qualities. George Smart, however, combines almost everything that can be desired. He is 23 years

of age, 5ft. 9in. high, and weighs 12 stone, and as Dr. L. H. H. Moxon says in his interesting little sketch of him, "He is a model of muscular development, combined with lightness and activity; and, to use an old phrase, 'looks capable of going anywhere and doing anything.' " Considering his age, style, and bodily power, he seems likely to hold the championship for many years, and in any international contest we could not be represented by a better man. It would seem that in him "the force of nature could no further go."

In order to give a statistical and truthful picture of the relative position which George Smart holds among his competitors, we insert a Table drawn up by Mr. Arnold Tebbutt; from this it will be seen that he stands like a king among his peers.

1879-80.	G. Smart	Harrison	Dewsbury	J. Smart	Carter	A. Hawes	Bone	Collison	See	T. Watkinson	Collins	Total No. of races won.
G. Smart, Welney ...	—	1	8	2	5	3	2	1	1	3	1	27
A. Dewsbury, Oxloade ...	—	—	—	—	2	1	1	—	1	—	1	6
G. See, Welney ...	—	—	1	1	1	1	—	—	—	—	2	6
H. Carter, Welney ..	—	1	—	—	—	1	—	—	—	1	1	4
A. Hawes, Welney ...	—	1	—	—	1	—	—	—	1	—	1	3
T. Watkinson, Welney ...	—	—	—	1	—	1	—	—	1	—	—	3
J. Smart, Welney ...	—	2	—	—	—	—	—	—	1	—	—	3
J. F. Bone, Spalding ...	—	1	—	—	—	—	—	—	—	1	2	4
W. Harrison, Downham ...	—	—	—	1	—	—	—	—	—	—	1	2
— Collins, Soham ..	—	—	—	1	—	—	—	—	—	—	—	1
Total No. of races lost ...	—	7	9	6	9	6	3	1	5	5	8	59

1880-81.	G. Smart	Harrison	Dewsbury	J. Smart	Carter	A. Hawes	Bone	Collison	See	T. Watkinson	Collins	Total No. of races won.			
G. Smart	—	4	3	5	4	1	2	4	4	1	—	28
W. Harrison	—	—	—	—	2	—	—	2	3	1	—	8
A. Dewsbury	—	2	—	—	1	3	—	1	1	—	—	8
J. Smart	—	1	2	—	1	1	4	—	—	1	3	13
H. Carter	—	—	1	2	1	—	2	—	—	—	—	6
A. Hawes	—	1	—	—	1	—	1	—	2	—	—	5
J. F. Bone	—	—	1	—	1	2	—	—	—	2	1	7
— Collison	—	1	1	—	1	—	—	1	—	—	—	3
G. See	—	—	—	1	1	—	—	1	—	—	4
T. Watkinson	—	—	—	—	—	—	—	—	—	—	—	0
Total No. of races lost ...	0	9	7	9	11	8	9	8	10	10	1	82			

In this Table there has been a judicious selection of heats taken from first-class races, and it includes the performances of all the best men. Thus, in these 141 first-class races in the last two seasons, Smart has never been beaten, or even pressed. There has been some change, however, in the relative places of the other men in the two years. Thus, in 1879-80, Dewsbury was unquestionably second, while G. See held the third place. In the last season Jarman Smart, the champion's younger brother, must be held to have the second place, for he won thirteen heats and only lost nine, while five of them were due to his being pitted against the champion. It would be hard to decide whether Dewsbury, Carter, or Harrison should be held to be third in the list of our experts. Collison is a very promising man,

and it may be hoped that G. See will be in better condition next year, and again show, as he once did, the indomitable pluck of his renowned father. This Table will also show the wonderful pre-eminence of Welney as a locality which produces fast skaters. That it should supply at least two-thirds of our best men against all England is a wonderful testimony to the excellence of its skating fields and water ways, and also to the merits of the "SCHOOL" which furnishes such training. Nordelph (very near Welney), Chatteris, Southery, Crowland, Holme, and Ely, have all supplied good runners, but Welney has surpassed them all in this respect, and is now known as the "Metropolis of Speed Skating." The greater interest in speed skating which has been manifested throughout the country of late years has brought more competitors into the field, but it has done nothing to shake the supremacy of the Fen country. John Hill, of Billinge, Lancashire, once beat Smart in 1880, but was beaten again by the champion in 1881. The length of the course in each case was not accurately measured, but was, probably, not much more than one quarter of a mile with one turn in it. These conditions, of course, give every advantage to the "sprint" racer as against the "lasting" one, and Hill has very wisely abstained from meeting the champion over any longer course. A curious instance of the supremacy of the fens was exhibited at the Amateur Championship race, which took place at Cambridge, in which Mr. V. Rolph, in the first heat, easily beat Mr.

C. Crute, who afterwards was declared Champion of the London District, and easily defeated all opponents from its 4,000,000 inhabitants. On the other hand, Mr. Rolph, who was the champion of the Borough of Cambridge, was beaten by F. Norman (for two years Amateur Champion) by sixty yards. Mr. F. Norman is a very fine skater, his style giving evidence of great speed without any waste of power. Judging, however, from the times taken in races of the "Amateurs" and "Professionals" the latter are very superior. Thus, on the same day, and over the same ice, while Mr. F. Norman beat Mr. Louis Tebbutt in 5min. 44 1-5sec., which was the fastest heat of the race, G. Smart beat his brother in 5min. 20 2-5sec. The difference of 24 seconds in a mile and a half race is, of course, very considerable.

This brings us to the much vexed question of the speed of skaters. It may be, we think, accepted as a canon of criticism of the times given in the old records, that unless the races were for wagers against time, the records are quite unreliable. It must be remembered that the races of the past were got up in a hurry, and their main object was to ascertain the *relative*, and not the *absolute* speed of the runners. If this were determined and the spectators satisfied, the whole object of the contest was attained. The bias of the human mind is always towards excess and "the wonderful." From causes already given, inaccuracy creeps in through many loopholes. The oft-repeated statement that Gittam ran one

mile in 2min. 29sec., and Turkey Smart the same distance in 2min. 2sec. is entirely mythical. Also the statement that William and John Drake ran two miles in 5½ minutes has no confirmation. It will be found that, whenever any man ran against time for a wager (i.e.) whenever there was anyone strongly interested in seeing that the time and distance were accurately taken, the time in which one mile was done was never less than 3min., and often considerably more. Thus, in 1871, Thomas Cross, of Ely, who, as we have seen, was then at the height of his power, undertook to skate a mile in three minutes on the river, and a considerable sum of money was staked on the event. He skated the half-mile with the wind in 1min. 30sec., and then turned and skated back again in 2min. 22sec., making 3min. 52sec. for the mile. The ice was, however, said to be bad and the wind high. In discussing the question of the speed of the early skaters, and the time assigned to them, we cannot do better than examine the times in which the best men have won their races since we have had accurate records, that is, since the establishment of the National Skating Association. Throughout the whole of these races the times are remarkably consistent if we make due allowance for the condition of the ice, the wind, and the number of turns. By making the starting point and goal identical, of course, the effect of wind is very much eliminated, but not altogether so, as a still day is certainly better for speed than one in which the skater has to skate with and against the wind.

Now, in the last two seasons, during which several hundreds of first-class heats were run, and the times taken, no man has ever run at the rate of a mile in three minutes.* G. Smart ran one mile, with three turns, at Elstree, in 3min. 17 2-5sec., and at Wroxham the same distance, with one turn, in 3min. 20 1-5sec. and these times are much shorter than any other under the same conditions, A. Hawes ran the straight mile in 3min. 17 2-5sec., and a mile, with one turn, in 3min. 31 4-5sec. The champion has, several times, run one mile and a half in 5min. 20 or 21sec., leaving his opponents far in the rear, though very good men. This time gives 3min. 33sec. for the mile. Now, from calculations taken from a sufficiently wide basis, the turn may be reckoned to cause a delay of six seconds, and the difference between a flying start and a standing one is equivalent to three or four seconds. All this tends to show that the champion can skate a straight mile with a flying start, without benefit of wind, in a few seconds under three minutes, though certainly not less than 2min. 55sec., and that no other man can do it in three minutes. It was in order to prove this that the writer offered a reward to any man who should skate the mile in 2min. 50sec. without advantage of wind. The Secretary of the N. S. A. converted this (with consent) into an offer of the same reward for a

* We have good reason to doubt the accuracy of the distance in the race which took place at Swavesey, Jan. 28th, 1879.

straight mile with a flying start, to be done in 2m. 40s. The day was a perfectly still one, and the ice was somewhat rough, and the champion did the mile exactly in three minutes. This result seems to have dispelled many illusions and disappointed many expectations, yet it was really a splendid performance. We believe that G. Smart is the first man who has *demonstrated* that this can be done. The question then arises whether the early skaters, who are reported to have done the distance in very much shorter times, were really swifter than those of our time. If we are to believe this we must conclude that not only did the champion of those days excel by an almost fabulous degree, but the general run of the competitors were also marvellously superior to their quasi-degenerate offspring. When Young and May are said to have completed a two miles course with three turns, in 5min. 2sec. on one occasion, and in 5min. 33sec. in a subsequent race, we are asked to believe that they could do the two miles in as little time as men of the present day can do one and a half miles. Not only so, but we must also take it that Trower and Torry, whose names were never heard of—before or since—did the like distance under the same conditions, in 5min. 48sec., whereas such men as Carter and Dewsbury would take just about 7min. 20sec. to perform it, calculating proportionally from the time in which they have accomplished a less distance. In other words, we must suppose that, if the men of our own day could be pitted, man for man, against the skaters of sixty

years ago, over their course of two miles, every one of the poor moderns would be beaten by almost exactly the whole length of the course, and would be just rounding the barrel at the far end when their opponents were passing the winning post. He must be a most insatiable "*laudator temporis acti*," who would concede this, and yet the only alternative is to admit that the times and distances recorded are quite untrustworthy. It is certainly vexatious that we have no means of comparing the pace of Gittam and Young with that of the brothers G. and J. Smart of our time, but it is some consolation that for the future we shall be able to compare the speeds of men of different epochs. Doubtless, if the Drakes, Gittam, Young, Farrer, Needham, Register, W. Smart and See, and Smith and Cross, Watkinson, and our own champion, could be all in their prime together, we should witness some very good races, but it is impossible to say, or even to conjecture, who would be the winners. If, however, we make the rough assumption that the generality of second rate men are approximately of equal speed, and judge of the several "champions" by their supremacy over their contemporaries, we have good reason to suppose that "Turkey" and "Fish" Smart were never surpassed, for each in his epoch distanced his rivals much more thoroughly than the ancient heroes did.

Speed in skating has been very much over-estimated by most people, a contrary error has been committed by others; thus, we have read long articles

on the comparative speed of runners on land and skaters on the ice, in which it is scarcely admitted that the latter have much the advantage. This, however, is past a doubt. At the distance of one mile the relative pace of the skater to the runner is about three to two. Thus, it has been demonstrated by G. Smart that a mile can be done in three minutes on the ice, and four and a half minutes would be considered very good time on foot and on land. It is true that the shortest recorded time of the runner has been 4min. 17sec., but it should be remembered that this short time has been culled from thousands of races occurring during many years, while the trials on ice have been of most rare occurrence, and it is not unreasonable to suppose that this time of three minutes may be improved upon to such an extent as to sustain the proportion of three to two. In all distances over a mile this proportion would, probably, be maintained. Thus, eleven miles in an hour would be considered a very great running feat, and it is probable that a first-class skater could do from sixteen to seventeen miles in the hour, though this needs confirmation. For distances less than a mile the proportionate speed of the skater would be less, and if a start from rest has to be made by both, the skater would be at a very great disadvantage. If, however, the start be eliminated, we believe it will be found that, at no distance, however short, can the runner compete with the skater. Comparing the speed of good bicyclists with skaters, we must give a clear preference to the

bicyclist. The ratio will be found to be about ten to nine for all distances.

The skating pace which compares most favourably with progression on land, is the ordinary travelling pace at which a fen-man goes from place to place. Any skilled fen skater can travel throughout the short winter's day at the rate of ten miles an hour, with no greater fatigue than he could walk at the rate of four miles per hour, and he could increase this pace up to twelve or fourteen miles an hour without being much distressed.

A few remarks on the arrangements of the skating races may not be out of place here. This is explained at page 65. Now, it will be obvious that there are some grave objections to their method. It might be suggested why should not the competitors all start together over a wide course, as the horses do at the Derby, and that this course might be either in a straight line, or carried round a meadow by a gentle curve. No doubt such a race, if it could be effected on any terms of fairness, would present a fine spectacle. A circular course, however, is very unsuited to this style of progression, and however slight the curve there would be a conscious lopsidedness in the action and pace would be lost. If the course was straight, ending 1 or $1\frac{1}{2}$ or 2 miles from the starting point, to take the time would be extremely difficult, and the duties of the judge could hardly be carried out satisfactorily. Add to this, as is well-known to all fen skaters, the fact that one man

can skate behind another with far greater ease than in front, on account of the opposition of the atmosphere, and the bending of the ice, and it will be seen that a cunning runner would skate close behind his opponent for nine-tenths of the way, and then, taking advantage of a freshness which he has secured at his expense, would slip before him at the finish and run in, an inglorious winner. At the Amateur Championship held at Cambridge last season, the course was not divided down the middle as it ought to have been, and the manœuvre referred to was definitely tried by an inferior man, but was, fortunately, not successful. Perhaps it might be thought that an intermediate course might be tried by having four or eight parallel courses and starting as many men upon them. Those, however, who know the difficulty of selecting, preparing, and keeping one double course clear, will hardly advocate such a procedure.

Against these disadvantages we have to set, that in the accepted method of running by heats, the men run absolutely over the same ice throughout the whole of its length. The question of wind is, to a great extent, eliminated, so that comparison between races can be more easily made. The spectators all along the course have the opportunity of seeing the men pass four times, and the judge and time-keeper's duties are simple and easy. With regard to the passing, it seldom results in any foul or difficulty. The writer has witnessed hundreds of encounters round the barrels at each end,

and can scarcely recall, one in which a collision has obviously affected the race, and, to the credit of ten men be it said, only on two occasions has he witnessed any attempt at unfairness in passing. It is, however, desirable that a convention should be established as to the rule which should be observed by the men when passing. A very simple rule would be for each man to keep to the right hand, as on the pavement. Instead of this simple rule, the one adopted by the National Skating Association is this:—"That each competitor shall be "required to keep his own course, and in rounding the "turn the skater who is first up to the turn be entitled "to the inside turn; but, where the competitors are on "equal terms when approaching the turn, the skater "whose left hand is next the post be entitled to the "turn." In the first instance it was proposed that the competitor who passed on his wrong side should be *ipso facto* disqualified from winning. Such a rule was absurd in itself, because if one competitor went to his wrong side, the other *must* do so also, and the loser would always have it in his power to claim a foul. In the last championship meeting one of the competitors gave up the contest just as he had completed his first round, and having a right to the inside by the existing rule, left the course going off to his right-hand side, and thus leaving the barrel clear. Of course, his competitor instead of running right out of the course to get round him, hugged the deserted barrel and continued his way. Singularly

enough, it was then maintained that if the unsuccessful competitor had claimed his race it must have been allowed him. It is almost needless to say that the race was not objected to, and, certainly, if it had been, the Judge on that occasion would not have allowed the objection, and in so doing he would have been adhering to the rules, for the above-quoted rule (28), is simply declaratory and has no penal force. Of course, as the rule stands, if a collision occurred, and this either affected the race or was due to foul play, it would be the duty of the Judge to give the race against the man who kept to the right when it had been declared it was for him to go to the left. It will be seen that the author, differs from the majority of the committee who framed the rules, as to the side on which it is expedient to pass. As originally framed the men were to keep to the right, but it is stated that the racing men hold that to keep to the left is the proper arrangement. We conjecture that this opinion arose in the following way:—In the old time there was certainly no rule of any kind, and men scrambled for the inside. Now, most men turn more easily to the left than to the right, and the man on the right-hand course would have the advantage in the scramble, and to be able to secure the further advantage of taking the inside turn. This, however, in our opinion, is just the reason why the converse arrangement should be made, and passing to the right should be the convention both for rounding the barrel and on the straight.

With regard to the number of competitors, the order in which they compete, and the distribution of the prizes: it will be found that a main of sixteen men forms the best race. This number works out to the finish without any byes; that is, without any man having to run the course without an opponent. Any power of two will produce the same result, but a less number, as, for instance eight, will hardly satisfy the spectators, and a larger number, as, for instance, thirty-two, hardly leaves time enough for the spectators to return home along the ice highways by which they have come before the set of sun. With the greatest expedition scarcely more than eight heats can be accomplished in an hour, and, as a main of thirty-two would require thirty-one heats four hours is required, and this is too long. The selection of the sixteen competitors should be left absolutely to the committee, and it is their duty to chose those whom they think the best men. The pairing is best done by lot, for though the best matches cannot be thus secured in the first heats, an arbitrary selection is sure to give umbrage to those who are pitted hopelessly against better men. Sometimes an intermediate course is taken by dividing the lots into two, and placing in different halves the men whom it is undesirable should run against one another in the first heats. In this case, of course, the two men who are considered best would be placed in different divisions.

We here insert the suggestions for the promoters of skating matches, published by the St. Ives' Branch of the National Skating Association. They have been well thought out and clearly expressed, and are to be recommended to the study of all those interested in races.

RULES AND ARRANGEMENTS OF HEATS.

- A.—The names of all persons entered to be drawn in pairs, and they shall run in the order drawn.
- B.—The winners of the first heats run the second heats in the order of the draw, and so on in all the heats.
- C.—If there is an odd number of entries, the man last drawn to run a bye (called a natural bye).
- D.—No skater shall be entitled to more than one natural bye unless all who are left in have had a natural bye, but the next runner above the person who has had one natural bye shall be entitled to the next, and so on until an even number of competitors shall be left in.
- E.—If any runner is absent when his turn arrives, he has forfeited his right to run, and the starter may, as soon as he thinks fit, direct his opponent to skate a bye (this is called an accidental bye and is not referred to in the above rules).
- F.—In the case of all byes, the skater shall skate over the course when directed to do so by the starter.
- G.—Each man to keep his own track and not to pass over the division line.

H.—Each man in passing his opponent at the turn, and also in passing at any other part of the course, to keep to his own right-hand side.

I.—The breach of these rules shall not disqualify any man, unless it is so decided by the Judge.

J.—All complaints of fouls, disqualifications, etc., must be made to the Judge immediately after the race.

K.—The Judge's decision in all matters to be final.

National Skating Association, Saint Ives' Branch,
Hon. Sec.: Mr. J. G. Hankin, St. Ives, Hunts.

SUGGESTIONS FOR THE PROMOTERS OF SKATING MATCHES.

Prizes—For a Grand Match to attract the best runners in the country, the sum of £16 to £20 is needed. The following is a good method of dividing any sum that may be available in a race of 16 runners. After deducting a small sum, say 2/6 to 5/- each, for the eight losers of the first heats, the remaining amount may be divided into four parts, and each part is to be equally divided among the winners of one set of the heats.

Thus, for £16.

8	Winners of 1st heats at 10/-	...	4	0	0
4	" 2nd " 20/-	..	4	0	0
2	" 3rd " 40/-	..	4	0	0
1	" 4th " 80/-	..	4	0	0
			<hr/>		
			£16 0 0		

The following would be the winnings of each man.

1st man	7 10 0
2nd ditto	3 10 0
3rd and 4th ditto, at 30/-	3 0 0
Four other men at 10/-	2 0 0
	<hr/>
	£16 0 0

Whatever method of dividing the money is adopted the object should be to produce the best running.

Entrance Fees—It is best to charge a small entrance fee, say 2/- to 2/6, to be forfeited by the decision of the Judge (together with the prize money) in case of absence or misconduct, but otherwise to be returned.

Prizes for Speed—If there are sufficient funds it is desirable to give an extra prize to the man who runs the race in the shortest time.

Selection of Men—All applications for entry need not be granted, but only those shall be selected who may be expected to prove good runners. If a time is fixed for closing the entrance list it should be made known.

Number of Runners—Promoters of Races should fix if they will have 32, 16, or 8, and not receive any additional names, except provisionally, to meet cases of vacancies arising. A 32 match takes too long a time to be satisfactorily run off, if time is given for people to come from and return to distant parts.

Length of Course—The most desirable courses are the

following, and are to be preferred in the order given.

660 yards, twice up and down, 3 turns ... $1\frac{1}{2}$ miles.

880 " " " " ... 2 "

550 " " " " ... $1\frac{1}{4}$ "

293 $\frac{1}{3}$ yards, three times up and down, 5 turns $1\frac{1}{4}$ "

For boys or untrained skaters.

440 yards, twice up and down, 3 turns ... 1 "

Arrangement of Course—To allow of all the spectators seeing as much as possible of the races, a course of greater width should be reserved than is actually needed for the track. If there is snow on the ice, about one foot width of swept up snow between the tracks forms a capital division line. Lumps of earth, sods of grass, or logs of wood, will also serve to mark the division line. If there is a turn in the course, the division, and also a boundary mark on the inside of the turn must be shown at that point, to prevent a corner being cut off by the runners. Each tract should be swept, certainly, 10 feet wide, and from that up to 12 feet or more, but the public should be kept off a width of 30 feet from side to side, by which their own view is much improved. As much of the course as possible should be roped off by means of empty barrels, such as old flour or cement barrels, with ropes from barrel to barrel twisted round a piece of wood stuck up in the barrels. Especially should the ends of the course be thus divided off, and at the last three chains (66 yards) the reserved space

should swell out to about 40 feet wide (the greatest width being about one chain from the ends).

The winning post must, of course, be fixed so as to allow of a fair distance for stopping beyond the post. A heavy or well-weighted barrel should be placed at the turning points for the skaters to grasp as they swing round.

Officials and their Duties.—*The Judge.*—Who shall have full control of all the others, and decide all points of dispute. He may think it wise to depute some one to be at the further turning point during the running to report to him what occurs there.

The Starter—He will tell the men about to race, his method of starting. The men being both prepared and standing level for the start, he will place himself in view of both and will ask—Are you ready? and receiving no answer to the contrary, he will almost immediately drop a handkerchief from his hand (in default of a pistol being used to start them). If both men prefer to start themselves he can allow them to do so.

Colours—Coloured Ribbons or Scarfs, say *blue* for the odd numbers and the right side of the course; and *red* for the even and left side of the course, are tied round the men's bodies.

Time-Keeper—The Time-keeper, with a stop watch to take the exact time of the heats. This adds much to the interest of the whole affair, and to the accounts given in the newspapers.

Course Keepers—Course Keepers, who skate in couples holding a stout rope 20 to 25 feet in length. It is their duty to keep the course clear, and to remove any obstructions that may be there. No one but the officials, the competitors, and those actually in attendance upon them should be allowed within the barrier lines, and none of these should stand on the track, or on the division line, when the race is being run. If the course keepers neglect their duties, or show any favouritism by allowing any individual to skate or encroach upon the course, others will insist on a like advantage, and the whole will shortly be a scene of confusion.

Bell—A man with a Bell. The business of bringing off the races is much facilitated if there is a man with a large hand bell, whose duty it is to ring up the men for the next race, to toll all the time the race is being run, ringing rather quicker during the last time down, and just as the men turn at the post.

Black Board—If a black board could be suspended on which to write the name or number of the winners of the last heat and the timing of the race, the public would be much inconvenienced.

The arrangements have been somewhat varied, and experiments have been made of late years. Thus, at Cowbit Wash a straight mile course was tried, and at Littleport a course of 1,400 metres with one turn. We think we are right in stating that the racing committee

are confirmed in their judgment—that the most eligible course is a one and a half mile course with three turns (i.e.), a course 560 yards long, to be run twice up and down. On such a course the winner in a race where there are sixteen entries has to run ($1\frac{1}{2} \times 4$) six miles, and the distance is quite enough to test the lasting qualities of the men. The old standard course was, as we have seen, two miles, but it was generally curtailed to about the present length, either from the first, or during the course of the race, so that the alleged distance was merely nominal. The distance of 1,400 metres, at Littleport, was adopted on account of the projected international contest which was to have come off in Holland if the frost had lasted. The ordinary course in Friesland is short, being only 160 metres, or about 174 yards long. In these races, sometimes, 120 to 160 skaters compete. The Dutch, however, very courteously conceded to us so far as to make the distance and conditions as above named. Jack Frost was certainly in one of his most capricious moods when, all things being fixed for the International Contest, he suddenly threw down his warder, demolished the lists, and indefinitely postponed the issue of the challenge. We have this interesting contest to look forward to, and we can only conclude by recommending to the gallant "Welney Division," and all the fine young fellows who showed us so much good sport last season, to observe that temperance and exercise which preserves youth and secures joyous health, so that when they meet the Dutch,

whom they are sure "to find worthy of their steel,"
on their own canals, we may be able to say—

"And you, good *femmen*,
" Whose limbs were made in England, show us here
" The mettle of your pasture ; let us swear
" That you are worth your breeding : which I doubt not :
" For there is none of you so mean and base,
" That hath not noble lustre in your eyes.
" I see you stand, like greyhounds in the slips,
" Straining upon the start."



SKATES AND SKATING.

IN this chapter we propose dividing the subject which has fallen to our share into five parts, under the following headings: I—Skates, II—Learning to Skate, III—The Theory of Skating, IV—Attention to Ice Fields, V—The Game of Hockey.

I—SKATING.

In buying a pair of running skates—for figure-skates are not referred to in the following remarks—it will be found cheaper in the long run to procure those of the very best quality. The size required is determined by the length of the foot and should equal the sole of the boot in length; thus, a person the sole of whose boot measures $10\frac{1}{2}$ in. will require a $10\frac{1}{2}$ in. skate; *i.e.* one the wood-work of which measures $10\frac{1}{2}$ in. in length. Running skates are sold in about nine sizes, the smallest being 8 inches, the next $8\frac{1}{2}$ in, and so on up to 12 in.

Skates of very good quality (without straps) should cost at the rate of about 1s. to 1s. 3d. per inch in length. A set of four straps will cost from at least 1s. 9d. to 2s. Thus a pair of skates complete, to suit a person with a

boot 11in. in length, will cost from 13s. to 14s.; but from 16s. to 20s. is charged for a pair of superior make, though we fear the chief part of the extra charge goes



Figure 1.

for ornamental additions of brass, &c., such as are shown in fig. 1, which represents one of the best of this kind of skate hitherto in the market; on the other hand, skates sold complete at less than 1s. per inch cannot be relied on. We therefore advise our readers to avoid these two extremes of inferior quality and of useless ornamentation. We know of no skate which meets these requirements more completely than the "Standard Running Skates."

The following is a copy of a published circular relating to them:—

National Skating Association, Saint Ives' Branch.

Hon Sec: Mr. J. G. Hankin, Saint Ives, Hunts.

STANDARD RUNNING SKATES.

Our Parent Society, the National Skating Association at its last General Meeting (held Oct. 14th, 1881), having finally resolved not to adopt any scheme of a like nature, our Standard skates are the only ones for speed-skating which are authorized by any public body.

There having been great difficulty and uncertainty in procuring skates of approved shape, construction and quality, a committee was appointed to collect such

information as was needful to remedy this state of things.

The Committee found that the caprices and changes of fashion and want of intercourse between experienced skaters and the manufacturers had prevented running skates being constructed on approved principles, and a fashion (admitted on all hands to be foolish) had sprung up of using walnut wood even in skates of the best quality in other respects.

The Committee have introduced into the general manufacture several improvements which for some years have been known to skaters in these districts.

In conference with the leading manufacturers and retailers, they have decided upon the most suitable design and construction for Running Skates.

Skates made upon their models are called "Standard Running Skates," and they keep specimens, should need arise for comparison with those sold to the public. They will give permission to approved manufacturers to use the Association registered marks (shewn below). This they would withdraw if they were applied to skates different in design, or inferior in material or workmanship which must be of the very best.

Although these skates must of necessity be somewhat more expensive than skates of average quality, yet their cost does not nearly equal that of the best sorts hitherto sold, while from their construction they will last, without breakage or injury, far longer than any other skates which can be bought.

The "Standard Racing Skates" in addition to the name of the maker have the device of a barrel and flag, and the letters S.R. upon the blade and upon the straps. These skates are distinctively suited for fast travelling, for racing and for all descriptions of skating practised by good running skaters.



The "Standard Hockey Skates" bear the device of two crossed sticks and a ball, with the letters S.H. upon the blade and upon the straps. These skates are exactly the same as the others, except that the blades are stronger made, and are more rounded at the bottom; they will therefore be preferred by most hockey players, by heavy people, and also by ladies and others who prefer ease in turning to speed, not wishing to go fast or to perform long journeys.



The "Standard" Skates are made in six sizes or numbers, corresponding to the length (in inches) of the boot, viz: $9\frac{1}{2}$, 10, $10\frac{1}{2}$, 11, $11\frac{1}{2}$ and 12, and the straps in each size are of suitable length.

We have chosen the skate described above for our illustrations, as we do not know of a better kind for representation.

Fig. 2, page 78, shows various views of the whole skate, and fig. 3, page 79, of the several parts which compose it and the trade marks (H.I.) These registered marks being punched on the skate-iron and on the straps, is the guarantee of their being of the

approved design and being equal in quality and workmanship to the standard fixed upon. D shows the screw-rod which is inserted to strengthen the wood-work at the toe end of the skate, and also for the purpose of better securing the blade in its place, even when the wood becomes somewhat decayed. This improvement has never before been supplied to the public.

E. are new forms of sole spikes which are screwed into the wood from the under side, and may be turned so as to project more or less to suit the kind of boots worn by the skater. This also is an expedient introduced by the Association to remedy the well known failing of the ordinary spiked pegs, which are continually becoming bent or displaced. It is to be hoped that this invention, or some modification of it, will prove effective. If in process of time these screws should wear loose in the wood, the same or fresh ones could be inserted in new holes, situated a little distance in front of the old ones.

The faulty shape of the prow, or turned up part of the metal in front of the toe, which is seen in some skates, and entails their liability to breakage and other inconveniences, has been avoided in these skates. Instead of the prow being prolonged in a straight line for a little distance in front of the wood, it begins immediately to rise off the ice, but at a gradually increasing angle, by this means it runs easily over inequalities in the ice, and does not scratch it in a

grating or unpleasant manner when the foot leaves the ice. Those who desire to let the toe dwell a long time on the ice have only to fix the skates forwarder on the boot, or to buy skates an inch longer than they would otherwise require.

The "Standard" Skates including straps are sold to the public at about 1s. 6d. per inch, and will be found

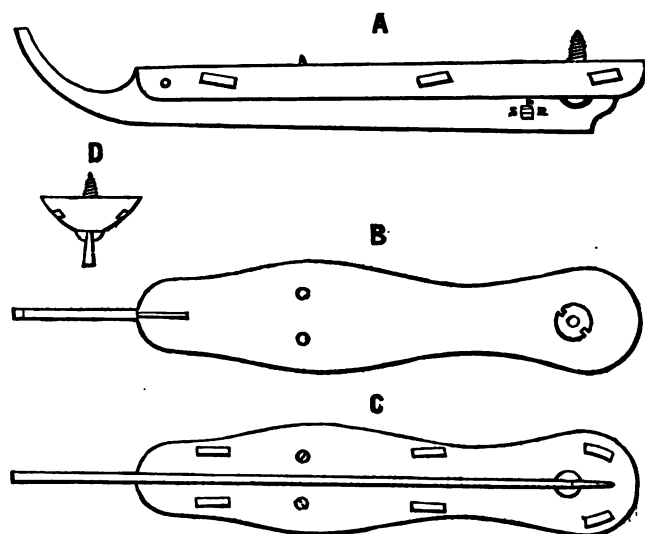


Fig. 2. (Scale $\frac{1}{4}$ Linear.)

far cheaper in the end than any other kind that can be bought. The straps are of a quality never hitherto sold with running skates; and in addition to this, the length of the straps and the arrangement of the holes strictly accord with the various sizes of the skates, which is not generally the case.

The Committee which took this matter in hand had the assistance and advice of Mr. Sidney Tebbutt, who is not only himself an excellent skater and the winner of races, but has a professional knowledge of mechanics and metal work. We therefore need not go into further details, but may conclude that the various requirements which will be afterwards described as essential to a good pair of skates, will be found in this pattern.

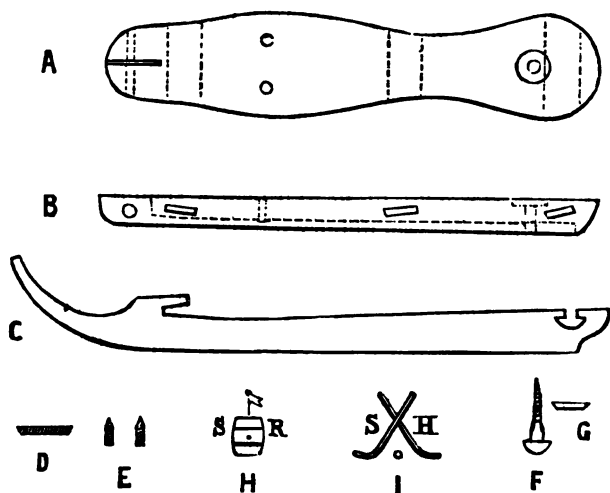


Fig. 3. (Scale $\frac{1}{4}$ Linear.)

If for any reason our readers do not wish to buy either of these "Standard" skates, we recommend them, supposing they cannot rely on their own judgment, to trust to that of some shopman who is himself a skater. If they ask for a "Whittlesea Runner," they will, perhaps, obtain a fairly good shape of running skate,

but for the last twenty years this name has been applied to such a variety of forms that it is a mere chance if the quality and the shape will be of the best. Any full priced skate of the fen pattern will, however, be sufficiently correct in shape to suit those who are not far advanced in the art of skating, or those who are not especially concerned to have things exactly right, though the purchasers will be fortunate indeed if they obtain a pair which will last more than one or two seasons without repairs.

On the choice of a pair of Skates.—The following hints may be of service to a purchaser who is obliged to follow his own judgement in his choice of a pair of skates. The bottom of the blades should in no case be quite flat, but should be more or less convex along the whole length. To test this, let the buyer place the two skates bottom to bottom, and holding them up to a good light, if the irons are properly shaped he will see that while they touch at the middle there is a perceptible space between the two irons at the heels, and also under the front part of the wood. If, however, they touch in two places the skates should be rejected, as one skate (perhaps both) must be concave instead of being convex. It is, however, possible that a pair of skates, one of which is convex and the other slightly hollow, might appear correct by this test, it is therefore also necessary to try each blade upon a perfectly flat surface. A very slight hollowness in one of the blades might be corrected on a grindstone, but it is far prefer-

able to buy those which do not require regrinding. It would of course be very difficult to measure the curves of the blades, but they can be tested with sufficient accuracy by the following method: place the two irons together in the manner described, except that in this case it will be convenient to place one skate bottom upwards on a table; a thick post card inserted between them at the heel ends and another between them at the toe ends, should fill up the spaces in the case of skates required for racing. But the thickness of *two* such post cards would not be too much to suit the taste of some.

The blades cannot be ground to an exact measurement, but we believe that 1-64 of an inch rise from the ice at each end gives a good curve, especially if the last $\frac{3}{4}$ in. at the heel is ground off a little more. And 1-32 of an inch rise is not too much for general purposes.

Again, if the eye, when looking down the length of the cutting edges of the blade, detects any sideways departure from an absolutely straight line, the skates should be rejected. The buyer can have the *thickness* of the blade measured; 10-64 of an inch is a suitable average width, less than 9-64 would only suit a boy and roughly speaking about 1-64 for every stone of weight, or, for every inch in length of the foot is a suitable thickness. As to the hardness of the steel welded along the bottom of the blade, although a most important point, even an expert could only test it by

filing or scratching the edge, and the shopman would hardly allow of this being done to any but a second hand skate; sometimes the depth of this steel part is in places too little; less than 3-16 of an inch being insufficient. By breathing on the blade and watching the time the moisture remains upon it, the amount of steel may sometimes be detected. If the skate is made of walnut wood, as is often the case, the buyer may conclude that it will soon split, unless this is provided against by the addition of metal plates, &c.; though he may perhaps, amongst a great number, find one pair that has a grain sufficiently twisted to prevent splitting.

Straps.—Even if a good pair of skates be purchased, there is much difficulty in making sure of obtaining good straps with them, owing to the fact that those who sell hardware are not usually judges of leather, and those who sell saddlery are not usually judges of skates.

The leather of the straps should be of the very best quality and should therefore be cut from the very best hides, and from the very best part of the hide, viz, from the Butts and not from the Belly, or other inferior parts. They should be cut from the best bridle butts, that is from leather whence the hand parts of the bridle reins are cut, the most pliant and serviceable leather being used in that part of a horse's reins which is held in the rider's hand. Skate straps of this kind, beside having many other advantages, will, when subject to wear, last twice as long as others. The straps should be 5-8

of an inch wide and about 1-8 of an inch thick, and the holes about $\frac{1}{2}$ an inch apart from centre to centre. The buckles should have rollers upon them.

Length of Straps.—About $\frac{3}{4}$ in. added to the actual length of the foot, or the measurement along the sole and heel, or from the heel end of the upper leather to the toe end, will give about the same length and determines the size of the skates. Each size of skate should have a correspondent length of strap. The straps are supposed to suit any shaped foot and to allow about four inches of length to spare, to pull up with; when the straps are new, or, in the case of a very plump foot, there will be one inch less to spare. But even straps of good quality will after a little use stretch as much as 1-24 of their length. Roughly speaking, the heel straps should be twice the length of the skate-measure, and the toe strap 1-3 longer than the heel strap, these measurements are from the head of the strap on the buckle end of the leather.

Of course these matters ought not to require the attention of those who buy skates, as each pair should be furnished with straps whose lengths are appropriate to the size; but this rarely happens, for it is the custom to make the sets of straps in only two lengths, and one of these sets has to do duty whatever the size of the skates may be. As also new straps have sometimes to be procured, when the length of the old ones cannot be ascertained, the following tables may be found of service. These tables give an idea

as to the respective lengths of the skates and straps required, and the average thickness of the irons; in these, and other details, the measurements given are necessarily only approximate.

Height of Person.	Trade size of Boot.	Size of Skate. Inches of wood.	Thickness of Skate. Iron.	Length of heel straps.	Length of Toe Strap.
	No.				
6 ft.	10	12	$\frac{12}{64}$	23	32
5 " 11 in.	9½	11½	$\frac{11}{64}$	22	31
5 " 10 "	9				
5 " 9 "	8½	11	$\frac{11}{64}$	21	30
5 " 8 "	8				
5 " 7 "	7½	10½	$\frac{10}{64}$	20	28
5 " 6 "	7				
	6½				
5 " 5 "	6	10	$\frac{10}{64}$	19	27
	5½				
5 " 4 "	5	9½	$\frac{9}{64}$	18	26
	4½				
5 " 3 "	4	9	$\frac{9}{64}$	17	24
5 " 2 "	3½				
5 " 1 "	3				
	2½				
5 "	2				
	Youths {		$\frac{8}{64}$	16	23
				15	22
	1½	8½			
	1	8			

The thickness of the skate iron might be 2-64 greater, if much strength should be required, and will not then be especially clumsy, but greater thickness should be avoided as it is found to tire the skater as well as encumber him with additional weight.

Boots for Skating.—The best walking boots are the best skating boots. Boots of stout leather with broad and thick sole and heel, and square toes, and well laced up, such as are shown in our illustration, will give ease and comfort in skating, and prevent the tightness of the skate straps from hurting the foot. Those who consult fashionable appearance in their boots at the expense of usefulness, are not likely to be sportsmen, or to be readers of this book. Buttons on boots are inconvenient, being apt to come in the way of the straps. Laced-up gaiters fastened over elastic-sided boots to give support to the ankles in skating, are sometimes to be seen (see fig. 6, C, page 89).

The only thing needed to prepare boots for skating, is to make a hole in the heel for the heel-screw of the skate. Making these holes should not be put off until the ice is reached, but they should be made at a leisure time. Having placed the boots, soles upward, on the table, proceed to mark the positions in which the holes are to be. Usually the holes are placed in the centre line of the heel. Some skaters, who profess to have carefully considered the matter, prefer placing the hole 1-4 to 3-8 of an inch on the inner side of the centre line of the heel, but this is a refinement upon which we do not desire to give a definite opinion. As to how far from the back of the heel the hole should be placed, that must depend upon the length of the heel of the skate blade. For such skates as are shewn in our illustrations, the boot hole should be made as far from

the back of the heel, as the distance of the screw of the skate from the end of the wood; the object being to bring the heel end of the skate iron about $1\frac{1}{4}$ inch (in say a 10 into 11 inch skate) in front of the back of the

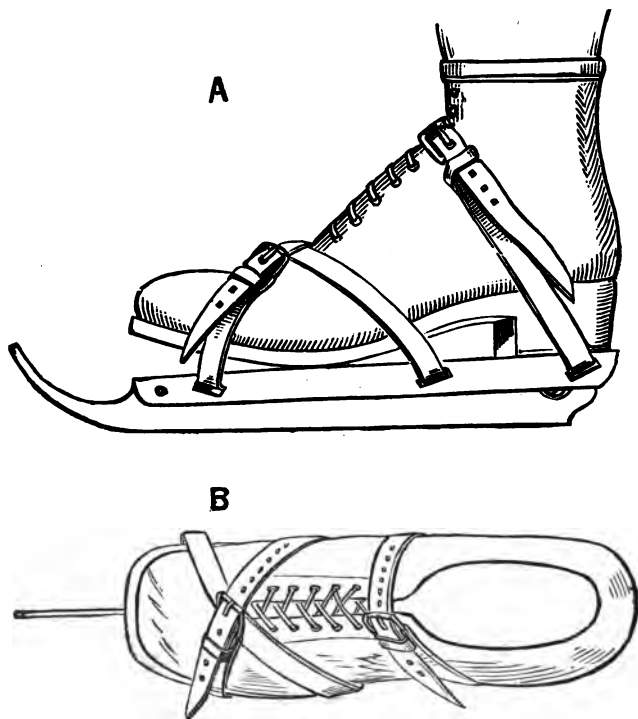


Fig. 4. (Scale $\frac{1}{4}$ Linear.)

heel of the skater's foot. Some skaters may prefer it say 3-8 of an inch more forward, others as much backward, but the above is a fair average of opinions. The heel end of the skate iron will then be forward

enough to enable the skater to stop himself with ease, and yet not so much so as to endanger his falling backwards by any misfortune (see figure 4, A).

Having thus marked the position of the spike holes,

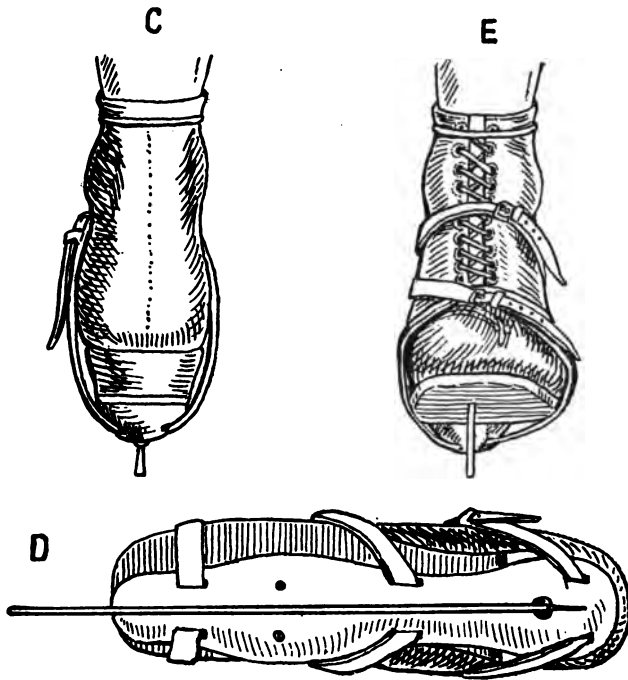


Fig. 5. (Scale $\frac{1}{4}$ Linear.)

the skaters will proceed to make the holes with a good and sharp gimlet of suitable size. If the gimlet is too small there will be much difficulty in screwing the spike in, and it will make the leather bulge out at

the bottom ; if too large, the hole will soon cease to hold the thread of the screw. It should be of the width of about the middle of the shaft of the screw spike. A bradawl first run straight down into the heel will greatly aid the gimlet and keep it from going down obliquely ; the heel spikes should then be screwed in until the wood-work touches the heel, and carefully unscrewed again, and any leather that has bulged out too much, should be cut off. It will be advisable to put the boots on the feet, and fix the skates on, as would be done for actual skating, taking care not to tread with the skate irons on any nails in the floor, or other hard substances. Let the straps be then fastened up in order to see that they are of the proper length, and notice the best position upon the foot for placing the buckles (see figure 4 and 5, A, B & E. A, being the outer side of the foot). The buckle ends of both heel and toe straps are placed in the outer side of the skate, so that the skater can get a good pull when tightening the straps. When the straps are fastened up there should be about four inches to spare at the end of all the straps, this only just allows of a good hold for the hand in pulling ; unfortunately if they are longer there is entailed the danger of the spare end getting under the skate iron and thus throwing the skater down ; this danger can generally be prevented by placing the buckles in the positions which are shown in the figures. If, however, the buckle-loops hold the strap's-ends fairly tight the latter may be

fastened by being passed the reverse way through the loop, viz., towards the buckle. Some people who take particular pains to have their skates well arranged and capable of being easily and quickly taken off and on, have screw holes made into the wood of the skate, (as shown in figure 7, A & B), 1-4 to 3-8 from the centre line. Having placed the straps in the proper position, so that the leather-head is, say, six inches from the hole in the case of the toe strap, and about seven inches in

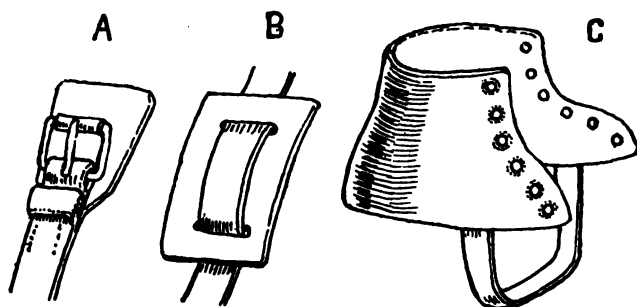


Fig. 6. (Scale $\frac{1}{4}$ Linear.)

the case of the heel strap (see figure 7), they drive in the screw through the centre of the strap (they would do better to have an eyelet with, say, 1-8 of an inch hole, inserted in each strap in the position indicated).

The only real objection to this plan is the trouble involved in having it done, and the fact that the wear of the straps always falls upon the same part; the latter difficulty can, however, be remedied by taking out the screws and shifting the position of the straps about an inch either way.

If, in skating, it is found that the pressure of the strap hurts the foot, a particular part of the strap may be slipped through two slits made in a piece of stout pliant leather (see figure 6, B, page 89), which placed over the tender part will protect it from the strap. For a similar reason some people have the buckles guarded by a flap stitched on to the buckle end of the strap (see figure 6, A, page 89), but it is undesirable to have this addition, unless the inconvenience we speak of has been actually experienced.

Practised skaters usually have their skates placed upon the feet so that the blade of the skate passes under the centre of the second joint of the great toe, or certainly not further outward than the cleft between the first and second toe, so that the line of the blade passes along about one inch from the inside edge of the sole of the shoe, as is shown at figure 5, E. and D., page 87.

There is much trouble in getting it done, but it has been found very convenient to have a piece of iron (for various views of which, see C. D. E., figure 7, page 91), screwed on the top of the wood of the skate (A) and about three inches from the front, to keep the skate in exactly the desired position upon the shoe.

This piece of iron may either be bedded into the wood or simply screwed on the top ; this plan of course involves using a particular skate, whether right or left, being applied to that particular foot, but as both edges of the skate iron ought to wear equally, this should not

be an objection. There is another advantage in this method, in those cases where the iron projects slightly over the wood-work, it serves as a guard to the toe strap immediately in front from occasional contact with the ice, as will be understood by looking at figure 9, page 94.

The sole spikes are supposed to keep the skate in the desired position on the shoe, this will perhaps be

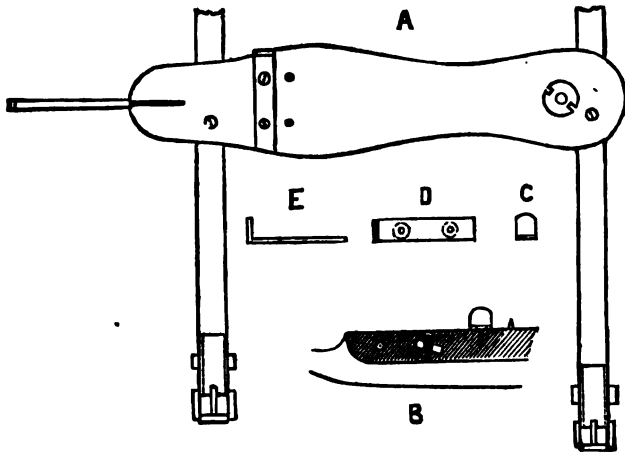


Fig. 7. (Scale $\frac{1}{4}$ Linear.)

better attained by making little holes to receive the full length of the sole spikes, though without this trouble they will perhaps bed themselves sufficiently.

Having made the spike holes in the boots or cleared out those made in a previous winter, it is a good plan before going out on the road, to fill the holes with some substance to prevent stones and grit getting in. If a

large stone should become wedged in, it will give much trouble to extract it, and the hole may be so enlarged as not to hold the threads of the screw.

The best and most convenient substances for stopping is common soap, moist bread, cheese, lard, or anything of a similar kind which comes ready to hand will also serve the purpose. While carrying the skates on the way to the ice-field, great care should be taken not to allow the skate irons to knock together; to avoid this, it is best to fasten the skates together, wood to wood, by means of the front straps and carry them by the heel straps, made into a loop by buckling.

Those who have their straps screwed in the wood, as described at page 89, can fasten the two skates together by the heel straps, and by placing them round the neck, like an untied scarf, can carry them safely and conveniently, thus leaving the hands disengaged.

Ordinary gimlets are rather dangerous to carry in the pocket, even when protected by a cork. Some (see figure 8, A, page 93), suitable for skaters, are sold with a brass cap (B) screwed over the point when not in use. Another kind (C), of a somewhat similar construction, can be conveniently and safely carried in the waistcoat pocket, as it has no fixed cross handle, but only a metal ring (D) to receive the screw-cap (E), which thus also serves as a handle when the gimlet is in use (F).

Having buckled up first the toe and then the heel straps moderately tight, it will be best to skate about a

little, as, after a time, the straps can easily be pulled to the requisite tightness.

Skaters will often be seen returning for help to get their heel straps drawn "just one hole tighter," but only succeeding in having it pulled one half the distance, they are tempted to have an intermediate hole

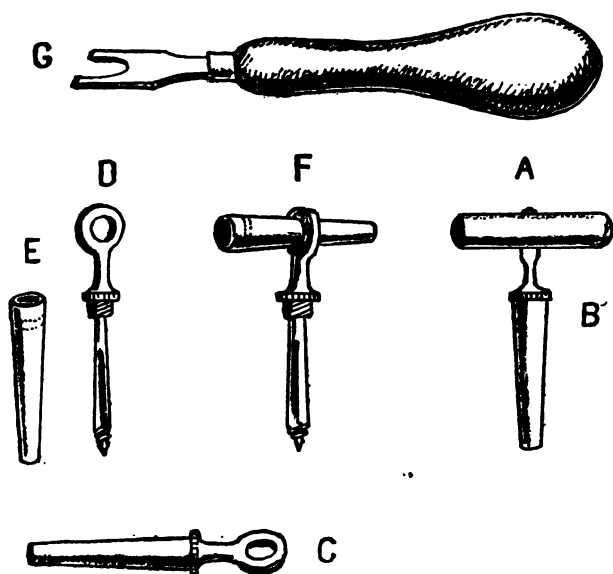


Fig. 8. (Scale $\frac{1}{4}$ Linear.)

made. This should never be done, as, if the holes are less than half an inch apart they will, even in the best leather, tear through from one to another. The inconvenience had better be borne than recourse had to this remedy.

A firmly fastened skate is at all times a great advantage, and is especially necessary when the hole in the boot becomes large by wear, and the screw loses its hold. The difference between one hole and another will thus sometimes prevent the strap being properly tight.

Although not in general use, there is a simple contrivance which remedies these inconveniences. It is the

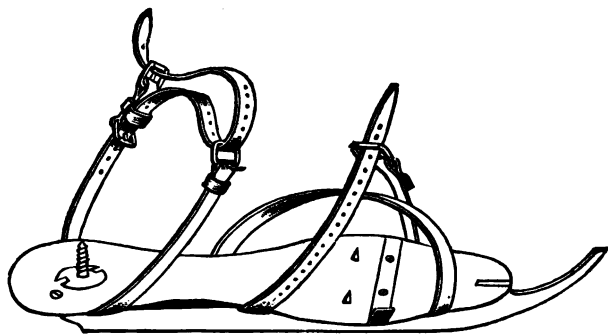


Fig. 9. (Scale $\frac{1}{4}$ Linear.)

addition to the tail end of the heel strap (after it has been placed in the skate) of another buckle. This is shown at Fig. 9, where it may be seen that the usual buckle is simply used as a pulley, and the end of the strap, after passing through it, is fastened to the second buckle. By this means not only is double strength obtained in pulling up the straps, but even as little as $\frac{1}{4}$ in. of additional tightness may be obtained, which cannot be done with straps as usually fastened.

This addition to the straps can be taken off or put on

at any time; it consists of a double buckle, which can be made by any saddler by connecting two buckles, heel to heel, and also placed opposite ways, i.e., with their spikes opening on opposite sides. These buckles are connected by a short piece of leather having a loop on each side. The use of this addition entails only about $1\frac{1}{2}$ in. of the extra length of the strap being used, and, of course, a few more holes may have to be punched, viz., to within about 12 in. of the buckle end of the heel-straps.



Fig. 10. (Scale $\frac{1}{4}$ Linear.)

Those who use this extra buckle do not require to screw the skate into the heel, but simply make the hole large enough to slip the screw straight in.

They then have this further advantage, that not a quarter the usual delay and trouble is required in putting them on and off; for by fixing the buckles very

loose (as shewn) they simply insert the foot through all the loops, and having slipped the spike into its hole, pull the straps tight. The usual buckle of the heel-strap now simply acts as a pulley, unless it is preferred to use it in the usual way.

We have already alluded to the wear of the strap in a particular place. Fast skaters especially are apt, at times, to extend their feet so far that the toe strap is pressed against the ice by the edge of the wood-work or the sole of the boot, on the inner side (see figure 10, page 95), and is thus worn very thin in that place. A wire protection may be slipped on the strap so as to cover this part. It is made by coiling some steel wire, of about 18 to 17 guage, round a model of the strap made a little larger than the strap itself; the coil is then tempered to a low spring color. This is made from 1 to 1½ in. long, as may seem suitable. A little piece of copper wire bent round the strap in a similar manner would, perhaps, serve the purpose. A strip of tin (tinned iron) bent to fit and slipped over the required place is also a remedy.

On reaching home after a day's skating most of the dirt, ice, or water, should be rubbed off with a cloth or duster, and if the skates are placed near a warm fire, the wet will soon evaporate, so that the iron will not rust, but if left near the fire too long the straps would become too hard and dry. If the skates are left so long at the fire as positively to bake the straps, the latter will be so injured that they will hardly last one season.

The straps should be oiled every two or three days while skating continues; but it is better every night after use, having first wiped them fairly dry, to oil them while still wet, and before putting them to dry; they will not then dry so quickly, but as the water evaporates the oil will sink into the leather and keep it soft. At the end of the skating season, before putting them away, another thorough good oiling, both to straps and irons, will be required. Olive oil will do very well and neat's-foot better, though Russian tallow is, probably, best of all. Unboiled mutton fat rubbed in (the fat tail of a sheep as it comes from the butcher is a convenient instrument in the opinion of some people) will also do. Any of these substances rubbed on the straps will keep them in good order.

If any of our readers are fond of amateur work, they will size (gum will do) and varnish the wood-work, and even the blade, all over previously to laying their skates by for the summer. If this is done the wood-work will last an almost indefinite time; otherwise, the varnish having rubbed off the wood, the moisture must, in time, injure it. Though it seems more satisfactory to preserve the straps in good condition, it is not absolutely necessary to take the trouble we have suggested, for, until the straps are actually broken they may still be used. But with regard to sharpening the skate irons when blunted by use, it becomes a matter of necessity to have this done. If the edges of the blade never came in contact with any substance

other than the ice they would not become blunt; but stones are often thrown on and become frozen in the ice; sand also and earth are carried on by the wind or by people's boots; these foreign substances soon wear off, and also jag the sharp edges of the blade. Minute notches made by flints taking little pieces of steel right away do not signify much. Ragged pieces of steel, which can be felt by the tip of the finger nail when run down the edges of the blade, although greatly impeding the skater, can easily be removed by a flat hone, or even by a piece of tobacco-pipe stem rubbed along the sides of the blade. But when the whole length of the blade is rounded off by wear the skater finds, when he wishes to make a powerful stroke, that his skate slips off the ice and that he cannot attain any speed. The eye may not be able to detect this bluntness, but when the edges of the blade are scraped over the surface of the finger-nail they will be found unable to remove any of the nail as they would do if sharp. When this is the case, nothing but re-grinding will make the skate again efficient. The manufacturers say that skates requiring to be ground should always be sent back to them, but this is practically impossible in the middle of the skating season. Tradesmen who deal in skates will usually get them re-ground for their customers, but the work is actually done by carpenters and others who have lathes. There are many people who undertake to grind skates, but there are few who can do it well, and the charge of a shilling per pair which

is made in country towns by the best workmen is not too much.

A forked wrench-key, or driver, is used to unscrew and take off the nut of the heel-screw. A cheap one with a short handle as shown at fig. 8, G, page 93, will serve the purpose of a skater who wishes to unscrew the nuts himself. Then by pressing the heel-screw down, or pulling the blade downward out of its groove sufficient play sideways can be given to the screw head to slip it free from the blade, which can then be thrust forward so as to unhook it from the toe-part of the wood. The blade thus detached is placed in a wooden holder, which the skate-grinders have for the purpose. When screwed up in this holder it can be held firmly by the two hands of the grinder who, placing one of the flat sides of the holder upon the "rest" of the lathe pushes the bottom surface of the skate blade up to the flat edge of the revolving stone in a direct line towards its centre. The blade is then moved from side to side until its whole length is evenly ground. The grindstone ought not to be less than 8in. in diameter, and the larger the better. The manufacturers grind them on stones of much greater diameter, so that there may be less hollowness at the bottom of the blade. But a stone of more than about 10in. diameter cannot be conveniently driven by a foot-lathe. After taking the blade out of the holder Provincial grinders, for the sake of giving the side of the blade a bright and finished appearance, are fond of touching up the sides of the blade on the stone; this

should not be permitted as it is impossible for them to grind it exactly equal all along, and they are sure more or less to destroy the evenness of this surface, the straightness of which along its bottom cutting edges is a most important thing. The grinders usually return the skates exactly as they leave the grindstone. The edges of the blade are then very sharp for cutting into the ice, but are rough for sliding along its surface, and it would take many hours of skating to wear off the roughness. After they are ground, the flat surface of a hone should be rubbed carefully and gently along the sides of the blade and even along the bottom; the edges will then be in the best possible condition for use. The stem of tobacco pipe as previously mentioned, will serve instead of the hone.

A skater who is very particular and has his skates ground to an especial curve, or who does not wish in the season to lose a morning's skating, will do well to take his skates direct to the man who grinds them and thus make sure that they are well and promptly done; his presence when they are being ground may perhaps be a check on a careless workman, who would otherwise let the irons get so hot on the stone as to destroy the temper of the steel, and thus ruin the skates.

Having thus given a few hints as to purchasing skates, their management, and the best mode of fixing them on, we approach the more difficult subject of learning to skate.

II—LEARNING TO SKATE.

Children whose ankles are weak will not be able to learn much until they are eight or nine years of age ; but even at six very strong children have pleasure in trying to learn, and may be allowed to do so, if they have some one to hold them by the hand. No one under thirty need think himself too old to commence learning, from this age to that of forty, falls are rather of course more serious, but the future pleasure will amply compensate for present trouble ; indeed it is a matter of astonishment to the experienced skater to hear from learners, how much they enjoy, what to him seems only a miserable struggle against difficulties. In one sense, however, all are learners ; even in Friesland —where more perhaps than in any country, there is a certainty of skating long distances every winter—the inhabitants, although commencing to skate very early in life are said to continue improving up to thirty years of age. Hence we may conclude that English people, if they give attention to the art, will improve even to a still later period of life.

We shall not attempt in the following remarks to instruct a person who has not yet begun to learn. A commencement must first be made by the learner endeavouring to get along on the ice as best he can, and either with, or without, the aid of a friend ; the more he is held up, by one or more persons supporting him by his arms, the fewer and less serious falls he will have, but the slower he will learn. “ Nothing venture, .

nothing have" is very true in learning to skate. Some partially support themselves with a walking stick having an iron point at its end, others by grasping the back of a chair which they push before them.

There is no "Royal Road" on the ice, and we would rather draw a veil over these early scenes than attempt to describe either the resulting tragedies or comedies. People light in weight, strong, active and enterprising, also strong children will often at the end of the second day have so far progressed as to be able to take some pleasure in the sport. The slowest to learn are those who are unenterprising and will not abandon the aid of friends, or the support of the chair, and those who are satisfied with just going cautiously along without accidents and therefore attempt no further improvements for fear of falling. Directly the learner can go along without constant falls, he should pay some attention to the manner in which other skaters move and try in some degree to imitate them. He may perhaps learn more from their example than from the advice they give, for it is not every good skater who has the ability to teach others, and the advice given to learners is often more misleading than helpful. A wise teacher will carefully notice the fault which is most obvious at the time, and seek to remedy that fault alone. As from the nature of the case, we cannot here adopt this system, we shall confine ourselves to mentioning the most probable short comings. First then, we remark that the ordinary learner does not press sufficiently

sideways against the ice when he attempts to strike, (the thrusting of the skate against the ice is always termed "striking") but he usually kicks too much backwards, and raises his heels as in running; he does not bring his body far enough over on the side opposite that on which he has just struck, so as to rest his weight and balance himself upon the skate upon which he is for the time being gliding; and when he replaces his foot upon the ice, the toe is not turned sufficiently inwards. To correct himself in these and other short comings, we advise the beginner to attend to them one by one, and only proceed to a second when he is fairly master of the first. Let him bear in mind that his muscles will in many cases be absolutely incapable of accomplishing what he is aiming at, until they have acquired more strength by use and exercise. And that the left leg, from its weakness as compared with the right, will probably be not up to its work for several seasons.

At any time that the limbs are found to be very tired or painful, it is best to rest until they have somewhat recovered. The ability to guide and turn oneself, strange as it may appear, is easily and almost intuitively acquired, though this power depends on motions so varied and complicated as hardly to admit of description.

We will now suppose that our skater has so far improved in going that if he is living in a large town, for instance London, he and his companions are satisfied with his success. Most people remain for the rest of

their lives at this stage of progress, however expert they may afterwards become in figure skating, for the amount of skill they have acquired is sufficient to give them pleasure in going, to enable them to travel across small ice fields without fear of falling, and to keep themselves warm by exercise. They may be said to have about half learned to skate, though this statement may need a word or two of explanation. Skating is almost as different from running, as swimming is from jumping. But in learning to swim there is no transition from the movements of jumping to the movements of swimming, whereas in learning to skate, the running movements are gradually transformed into the skating movements, and at any period of this transition the so called skater may leave off attempting to improve, and so settle down to a sort of hybrid action, by courtesy called skating, though a hen might as well be said to fly when she runs along flapping her wings to aid her legs. At this stage the learner kicks up his heels after the method of a runner, though perhaps to an extent of not more than half, when in fact he should not raise them at all, and similarly with many of his other movements.

The following hints and remarks will be to a great extent amplifications of the statements already made, and are given with a view to aid those who are not satisfied with a method of progression which we can only call semi-skating. Instead of the toe being allowed to scratch the ice when the heel is in the air, both toe and heel should leave the ice at about the same time.

And at the slow pace of a beginner, the toe of the propelling leg when it leaves the ice should not be far (say six inches) behind the toe of the other foot although it will of course be a considerable distance from it sideways. In bringing the leg, which has just left the ice, back again towards the body, the instinctive habit of raising the heels as in walking or running, must be carefully overcome by holding the blade of the skate so that its whole length would scrape along the surface of the ice, were it not raised about an inch above it. Before being again put down on the ice it should be brought close alongside the other foot, so that the two ankles nearly touch. If instead of this it has to be dashed down when it is a considerable distance, say six inches, sideways from the other skate, it is either because the body is not well balanced upon the other leg, or because the skater is unduly afraid of losing his balance.

The fewer strokes that are made per minute the better, as increased speed should be chiefly obtained by extra length of run, produced by greater force of stroke. Many boys who at 12 or 13 years of age go very nicely and give promise of being first rate skaters, take to racing with other people and from that time deteriorate rather than improve.

It may now assist the learner to turn his attention to the fact that the blade of his skate, as seen from behind has two edges. One of these edges is on the outer side of his foot, and one on the inner side. The outer edge should be used for one purpose,

and the inner edge for another purpose. The outer edge is the one on which the skater should glide. The inner edge is the one he should press against the ice when he strikes.

It is true that without knowing or thinking about this he might by practice, so improve his skating that he would unconsciously use each edge of his skate in the proper manner, but he would still be ignorant of the cause of this improvement, and therefore probably fail in making further progress. When correctly used the outer and inner edges of the skate-blade are equally blunted by wear. Inexperienced skaters, however, always blunt their inner edges first, and to remedy this they from time to time change the side on which they place their skates.

Swinging the arms.—The correct swing of the arms is an aid to the skater even when going at a moderate speed, and there can be no really fast skating without it. It is therefore needful that the proper swing of the arms should be learned by all. Both the arms should be swung from side to side like two pendulums going simultaneously, they must keep time with the stroke of the legs and be swung to the side opposite to the striking leg, as if for the purpose of balancing its weight. Care must be taken not to fall into the habit of swinging the arm behind the back instead of round the chest.

It is impossible to specify how far forward the body should lean, but the greater the speed the more the

skater stoops. As he glides along supported on one leg, the ankle, knee and hip are bent, and thus his body is carried low, so as to allow of a more extended stroke when the time arrives for it to be made.

The pictures given in this book to show the attitudes of skaters going fast, of course will not serve as exact models for one who is learning to skate. These attitudes will however, serve to illustrate the movements assumed at moderate speed, being strictly analogous to these latter motions though carried out in an exaggerated form.

Stopping.—The best method in case of sudden emergencies, is for the skater to place both his skates level and parallel, and then raise his toes, and run upon the heels of his skates, at the same time arching his back, and leaning forward so as not to lose his balance. The sharp ends of the heels digging into the ice soon bring him to a standstill. This method is however, very trying to the ankles, and spoils the ice. Keeping both skates on the ice, and turning both of the toes inwards so as to present the outside cutting edges somewhat broadside to the ice, is now generally adopted as a better method of stopping, though not so immediate in its effects.

Some skilful skaters prefer stopping themselves by keeping both irons parallel to each other, but presenting them both somewhat sideways to the line of motion.

There is a common but erroneous idea that few skaters enjoy nothing but continuous and violent attempts to go as fast as possible, and that there can be no art or skill

displayed in skating slowly. But the truth is, that a good running skater, even in his slowest and most deliberate movements displays, to an attentive observer, extreme skill, and exhibits by the ease, certainty, and precision of his motions, the same superiority over those who are unskilled, as he would do, were he going at the rate of fifteen miles an hour. As compared with those who practice figure skating only, he has the superiority in that he can make his way through a crowd more safely, either slowly or fast, can avoid obstacles, cracks in the ice, &c., can stop and start more quickly, and can even jump over impediments, and all this without noise, violence, or jerks of his body. To use a comparison which will be understood by all horsemen, a good running skater may, for general purposes of going, be compared to a well-trained hunter as contrasted with a raw horse which rushes at his fences. An art which renders a man of fifty to sixty years of age more than a match for an athletic young man who is not quite so skilful, may well excite admiration ; and as this book will be read by many enthusiastic admirers of the sport, we must not leave this subject without at least making an attempt to give a more or less exact description of the motions of a good skater when going fast. We are the more desirous that this branch of the subject should not be altogether neglected, as we believe that when the theory of skating is well understood by intelligent readers, there will be throughout the country, a general improvement in skating. It is usually supposed that

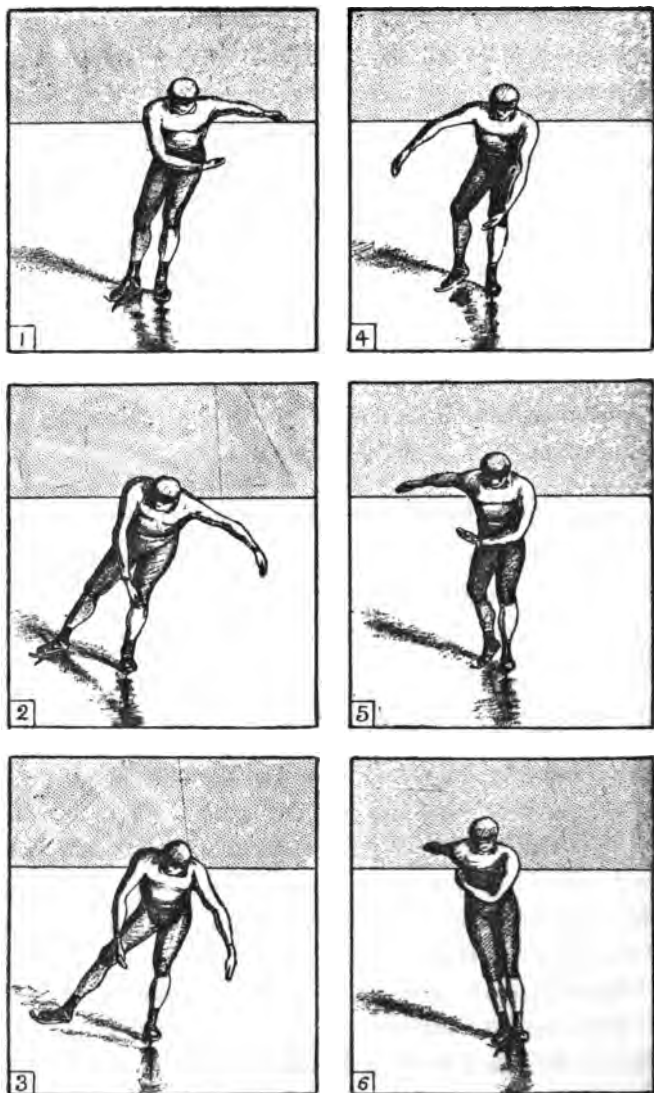
ordinary people can hardly expect to become first-class skaters, unless they learn in company with those who are very proficient, and have constant opportunity of watching and imitating them ; this we do not believe, but on the contrary think that anyone who cares sufficiently about it, may by practice continue to improve to an indefinite extent, if he can once get an accurate idea of the peculiar motions required.

We have repeatedly noticed that an hour's instruction given to a youth, will render him so superior to his companions as to be a matter of surprise, both to them and to himself. Let us therefore consider,

III.—THE THEORY OF SKATING.

In these days of champion races, every observer likes to maintain his own opinion upon the styles of the various racers, and it is therefore well that some definiteness should be given to a matter which is the subject of general conversation. As we shall be making an attempt hitherto avoided by writers, owing to its difficulty and complexity, we must beg the kind indulgence of our readers, and we on our part, will in return suggest that they have full liberty to omit reading this part, should they come to the conclusion that we either fail to understand the matter, or have not skill to make ourselves understood.

We all have a general idea of how a skater goes, but it requires close attention to his movements to understand the exact method he adopts, and to understand

**Fig. 11.**

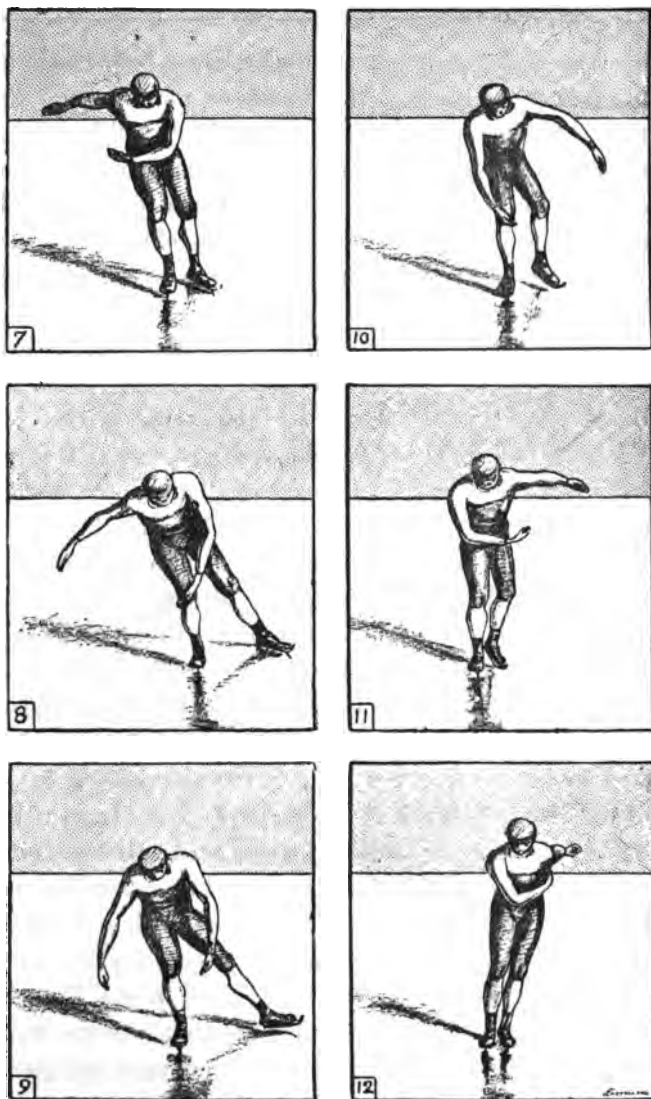


Fig. 12.

how the varied movements of the limbs and body combine to produce the result. The marks or scratches left on the ice by the sharp edge of the skate blade will however, afford a clue for understanding these movements. On closely examining the marks made on the ice by a good skater, it will be seen that each mark is chiefly made by either the outer or inner edge of the blade, and but little of it by the flat under-surface.

A little consideration will show that this must necessarily be the case, while any guidance or propulsion is being given by that skate, for how could motion or guidance be obtained on so slippery a surface as that of ice, if the iron did not cut into it? And the under surface of the blade being flat, how could the whole width of the iron sink deep enough into so hard a material? The black lines in the diagram, figure 13, page 113, are typical representations of the marks on the ice, made by a skater while going at a high speed.

We also give at figs. 11 & 12 pages 110 & 111, a series of twelve views of a man skating fast, and as he would be seen by an observer to whom he was approaching in a direct line. From 1 to 12 they follow in consecutive order, and as far as so limited a number as twelve views can do it, they exhibit the whole round of movements, so that No. 1 again comes after No. 12, thus serving instead of No. 13, which would have been similar to it. This series of views has been tried in the French Zoetrope, or wheel of life, called the Praxinoscope, and when so seen, fairly represents the motions of a skater.

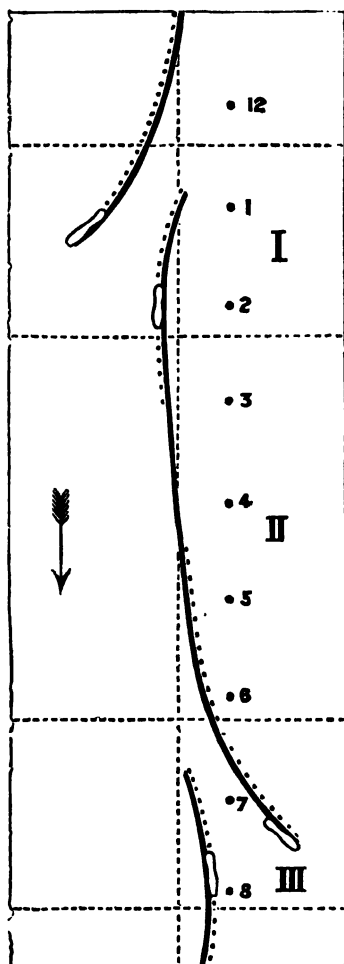


Fig. 13. (Scale 1-50 Linear.)

of the ice-mark, and the descriptions of the motions will

The diagram fig. 13, contains dots having numbers placed near them. These dots indicate the place of the man's body with reference to the ice-marks, and the pictures of the man are supposed to be drawn at the exact time when his body was at that place. Thus, opposite dot 2, the position of the left foot is indicated, and at that instant the other foot is somewhat behind. By turning to picture 2, we see the attitude of the man at that moment, and every other dot corresponds to a picture with a similar number. To illustrate more fully the attitude of the skater, at time 2 we also give a side view of him at fig. 14, page 115.

The following analysis

be best understood by continued reference to the various attitudes of the skater.

In Fig. 13, page 113, one of the strokes, viz: that made by the left skate, is divided into three portions, I, II and III to indicate the three various positions and actions which the *skate* assumes. As indicated by the firm part of the line being on the outer side and the dotted part on the inner side, I. is made by the outer cutting edge of the blade; II. is made by the blade as it rolls over from the outer to the inner edge including the slight mark which it makes when on the flat of the bottom; III. is made by the inner edge. During the period when I. is being made, the leg or the skate which makes it might be said to act as a "*rudder*" to the body of the skater. During II, it acts as a "*supporter*," and during III. it acts as a "*propeller*." But during I. when the left leg is acting as a rudder, the right leg is in its 3rd stage, viz., acting as a propeller; so that whenever these two skates are together on the ice they must be thought of as acting in combination. During the period II., while the left leg is alone sustaining the body its line of motion is almost directly forward, and at this period the right leg is being drawn back to the centre line above the surface of the ice, and of course making no mark. During time III. both skates are again acting in combination, but the left skate has now become a propeller, and the right skate in its turn has become the rudder.

But although during the periods I. II. and III., the left

skate produces three distinct effects upon the ice and upon the skater's body, there is no sudden change in the movement of the limb, its action consisting of one prolonged, continuous and increasingly powerful extension by means of its various joints.

From the last part of the scratch (III.) we can arrive at the direction of the line of thrust in which the stroke is delivered, in relation to the skater's body. Each skate



Fig. 14.

during the whole time it is on the ice is slipping forward over the surface, so that it is impossible for there to be any direct backward pressure of the foot as in walking.

But it will be observed that towards the end of each stroke the scratch runs obliquely away from the centre line of the course. It is at this period that the skater by pressing the blade strongly against the ice in an oblique

direction propels his body from it. Towards the end of the scratch its course diverges more and more from the centre line, and the speed of that skate over the ice gradually decreases.

Under these conditions it is a sideways kick alone, or one partly sideways which can produce onward motion, but as the stroke approaches completion it is less and less sideways. In swimming it is only an horizontal backward kick that can produce forward motion, and to allow of such a stroke being thus delivered the spine or axis of the loin has to be laid horizontally in the water. For a man can only kick with the sole of his foot by extending the joints of the hip and the knee, and this can only be done with full effect, exactly in the direction to which the spine of the back or rather the axis of the loin points. In skating, for the same reason, the body must be inclined sideways to allow of the leg striking in the opposite sideways direction, but as the relative position of the body, and the skate is continually changing, the skate becoming more and more behind the body and further from it sideways, the body must be continually adapting its inclination to suit the direction of the thrust.

It is a fact well known that ease and speed in skating far more depend upon the skill than upon the strength of the skater. And it will not be a matter of surprise that the dexterity and effort of the skater have to be chiefly directed to those points which at first sight seem secondary matters. Thus it is of vital importance that the sharp edges of the blade should be presented to the

ice at precisely the proper angle. At the period represented at I, fig. 13, page 113, or of the illustrations No. 1 and 2 at page 110, and at the time of the dots No. 1 and 2), for these are equally referred to when the numbers are given), the left leg is acting as a rudder in the manner previously described. To enable it to effect the guidance of the body, the skate iron has to obtain the requisite "bite" of the ice. This is obtained by the inner edge of the blade being held so as to cut a small groove in the ice. Also during the time the stroke is being made (III and No. 6 and 7) the skate, having rolled over on to its inner edge, cuts a similar groove for the purpose of obtaining a resistance to the propelling effort. These grooves are very minute but cutting them, even to the depth of one-fiftieth or one-hundreth of an inch, must lead to some loss of speed; this, however, is compensated for by the fact of there being a very much smaller surface of iron rubbing against the ice. Even at the greater depth mentioned, only one-fifteenth of the amount of steel touches the ice compared with the whole bottom surface of the blade.

The diagram at Fig. 15, page 118, shows the end views of a skate when held at various degrees of inclination; and on the left hand are the corresponding sections of the groove in the ice with the edges of the blade shown as making them. These latter are of course on a very enlarged scale. At E the skate is represented when held at an angle of 45 degree, and in this case the least possible surface of steel touches

the ice and (at any given depth) the least amount of ice has to be cut away. But owing to the position of the foot and leg, this angle cannot be attained on the outer side, and only on the inner side when the leg and foot are inclined as shown at Fig. 16, page 119. A Fig. 15

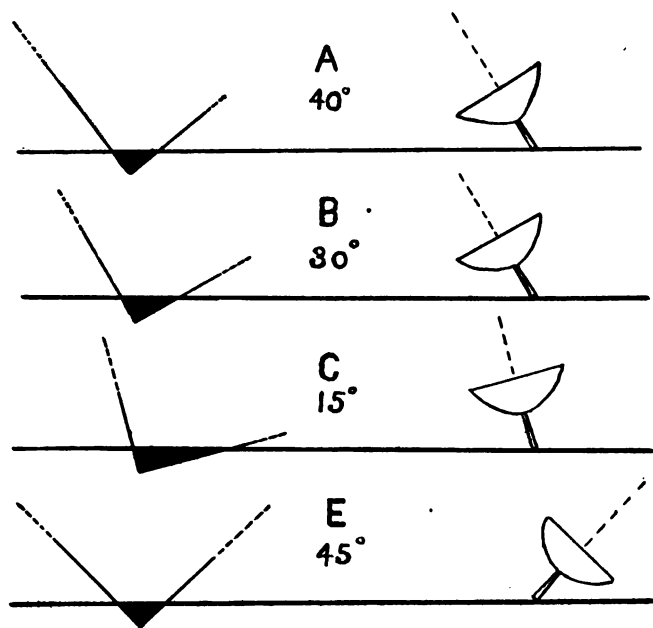


Fig. 15.

represents as much inclination as could possibly be given to the skate when on its outer edge. If it were 30 degrees as at B, the surface exposed to friction would be slightly more than at E. But if the skate is only inclined 15

degrees as at C, the surface of steel touching the ice would be fully half as much more than when in position A. To give the skate the requisite inclination at the time No. 1 and 2, pages 110 and 111, every expedient has to be adopted by the skater. The sideways ankle movement partly accomplishes this; but it is chiefly done by the sideways inclination of the whole leg and body; but this is not effected by letting the body fall sideways from the



Fig. 16. (Scale $\frac{1}{4}$ Linear.)

centre line of the course. It is attained by allowing the legs to slip away outwards, as in pictures No. 5 and 6, the body still continuing in the central line. To compensate for this sideways transference of weight, the arms are swung to the opposite side, (See Nos. 4, 5 and 6).

The movement of the arms plays an important though complicated part in the motions of the skater. Their

the ice and (at any given depth) the least amount of ice has to be cut away. But owing to the position of the foot and leg, this angle cannot be attained on the outer side, and only on the inner side when the leg and foot are inclined as shown at Fig. 16, page 119. A Fig. 15

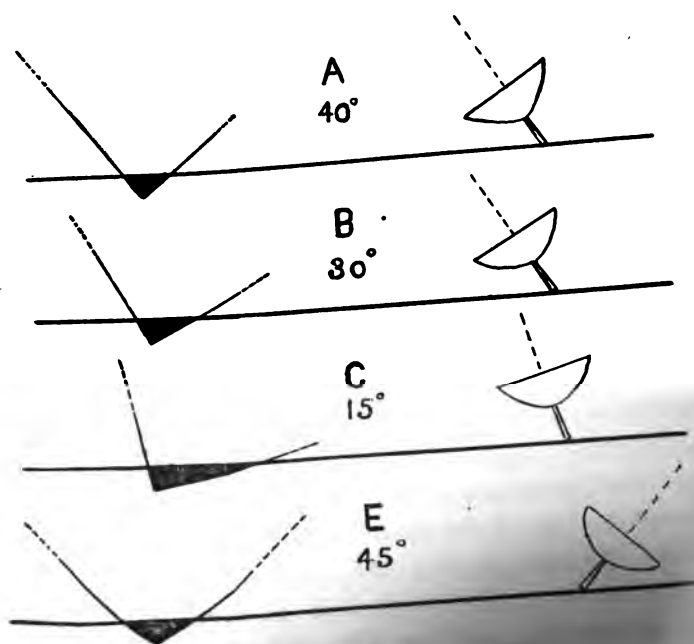


Fig. 15.

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as at B, the sur-
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2. During brought up to increasing bend increasing, but y brings the outer ice at 1. From already falling, both 2 it is at its lowest the skater when in this

age 115. The sideways drop the suspended foot to the ice, leg running away outwards the forward fall or drop of the bending of the ankle, knee, and centre line of the top of the back. The form of the the height of the boot at the heel, enables to be thrown still more forward. the height of the skater's heel and at fig. 4, A, page 86, where the heel of is $1\frac{1}{2}$ in. higher than the the dropping the body is

swing is so extensive that the outer one is sometimes raised even above the horizontal line and thrown backwards nearly 45 degrees from the plane of the chest. Neither of the arms are stopped by any muscular effort but the outer one flies back as far as its impetus carries it, and the inner one wraps itself round the chest. (See No. 6). From the elbows downwards the muscles of the arms are relaxed, so that the hands are left open or only partially closed.

It needs an instantaneous photograph of a skater in full career to settle the point, but we believe that the arms reach the end of their swing and commence falling again before the propulsion of the opposite leg is completed and our zeotrope pictures are so represented. If this is the case, the arms, having been moving as above described, begin to fall again (see 1) so that when the stroke of the opposite leg is being made (1 and 2) they are at their lowest position. They thus aid the other limbs in the effort to lower the centre of gravity, which will be described further on. After the thrust is completed, the arms continuing to move in the same direction are swung to the other side, and (at 4, 5 and 6) transfer their weight to the right side of the skater, while his feet are allowed to slip away to the left side as previously described.

Leaving the subject of the arms, we revert to the movements of the legs in order to give a more detailed description of how the *guidance*, *support* and *propulsion* are effected at succeeding periods (I., II., and III., fig.

13, page 113). We proceed to describe the whole round of movements of the left leg, commencing at a certain definite situation and following it until that situation is again reached. A similar description would of course apply to the right leg. The time of suspension of the left leg is not indicated in the diagram, but would have preceded I., or succeeded III., and would therefore have been IV., and the dots or pictures corresponding would have been 8, 9, 10, 11 and 12. During this period of suspension the leg is being brought up to the centre of the course with a slight but increasing bend of the knee. At 1 this bend is still increasing, but in spite of this the drop of the body brings the outer edge of the skate blade to the ice at 1. From 12 to 1, the body has been already falling, both sideways and forward, and at 2 it is at its lowest position. A sideways view of the skater when in this attitude, is given at fig. 14, page 115. The sideways drop of the body which brings the suspended foot to the ice, results from the striking leg running away outwards from the central line. The forward fall or drop of the body is produced by the bending of the ankle, knee, and hip-joint, and by the stoop of the back. The form of the skate itself, and the height of the boot at the heel, enables the body of the skater to be thrown still more forward. This difference between the height of the skater's heel and sole may be seen at fig. 4, A, page 86, where the heel of the foot is shown as $1\frac{1}{4}$ in. higher than the front part of the foot. The object of dropping the body is to bring the centre

of gravity as low down, and also as forward as possible, so as to be more in the line of the thrust of the striking leg, but it has the incidental advantage of presenting less surface to the resistance of the air. The left leg, the movements of which we continue to describe, is now (see picture 1) ready to receive a part of weight of the body and for a little time it continues running on the ice, parallel with the other skate. Having received its due proportion of weight, it commences to press (but not to run) outwards and sideways against the ice, and so acts as a rudder to the body which would otherwise be driven by the thrust of the right leg, out of its course towards the left side. The stroke of the right leg being finished, the body commences (3, 4, 5, 6,) to resume its more erect position; for the cramped position of the joints at 2 could not be long sustained. The body not only rises again through stooping less forward, but also through the left leg continuing to move towards the central line of the course, and thus running under the body, and so raising it. In doing this, it rolls over from the outer edge on to the flat under-surface of the skate-blade (4), and thence on to its outer edge, as the foot runs still more towards its own side of the course (5 and 6). The left leg, then (7), commences to strike, for the right leg is ready to act in combination with it though pushing in the opposite direction.

The muscles by which the guiding skate (the left skate at 1, 2 and 3), is pressed sideways

against the ice, chiefly produce the guiding force, and perhaps the first part of the propelling force. But, during the middle and latter part of the stroke (7 and 8), the knee and hip joints are straightened, and at the conclusion of the stroke, the extension of the ankle joint is of especial service. During the whole of the stroke, the face, chest, and whole plain of the body are being twisted towards the side to which the leg is striking, as seen at picture 8, page 111, and in the reversed position at fig. 14, page 115. The leg and ankle are also twisted as much as they can be, and the whole together, enables the toe to dwell upon the ice until the last moment. It is finally drawn away from the ice by the onward motion of the body, and the skate flies upwards (as seen in picture 9) and then immediately commences its return to the central line, the toe beginning to turn inwards again. Of course, at 11 the left or suspended leg could immediately be lowered again to the surface of the ice, but the flat of the blade, and not the outer edge, would then touch the ice. It is only the confidence inspired by practice and skill which enables the skater to refrain from placing his skate down upon the ice too soon, for when he feels his body falling sideways, he is tempted to dash his skate down, instead of delaying the matter until the outside edge can be presented to the ice in the most favourable position. There is no real danger of thus falling sideways, for the forward motion of the body allows the supporting leg to run underneath the body, in the same way as a Bicyclist

when falling on one side, saves himself by turning his wheel so as to run under his centre of gravity again.

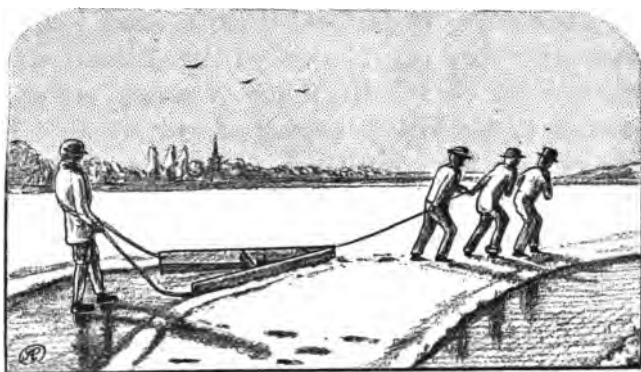
Having thus followed the left leg through the whole round of its movements, we conclude this theoretical branch of the subject which we, and doubtless our readers, have found as difficult and tedious mentally as the more practical task of physically learning to skate.

We believe any well made man may become a good skater, although not perhaps a winner of races. They say good horses run in all shapes, and it may be so with skaters. Men, with symmetrically turned limbs, skate the most elegantly, that is, with least exertion. But men of sturdy build, with broad and long bodies, short and strong limbs, are the most enduring. The former are fitted for races of about one mile, the latter for about double the distance. A modern runner, who is second to few, presents the latter shape. A combination of these forms is very desirable for making a first rate skater. There must of course, be no deficiency of muscle in the thighs or calves. The style of each runner has generally some speciality, but the foregoing description of skating, being general in its terms, would apply to all good "goers." Most men go with rounded backs, but there are now two well known runners who skate with a hollow back which jerks at each stroke. One runner who is in fair repute, clenches his hands when going. Another, of much greater speed, kicks up his heels exceptionally high. The most marked exception to our description is a very well known runner who,

instead of swinging his arm across his chest, thrusts the hands rather forward, and seems to check both his arms at a certain point, instead of letting them swing free from the elbow. This is quite a novelty, and even in his case, this habit is wearing off with practice. In spite of there being small individual peculiarities in the style of each man, the action of all fast skaters is very similar. Still, there seems to be two distinct styles of going. One suited to men of exceptional activity and wind, and best adapted for races of one mile, or one mile and a half; the other style is more dependent upon extreme skill, by means of which, power is much economised; it is therefore more adapted for races of two miles.

Skaters who go in the first-mentioned style, inclined their bodies less, do not take quite so wide a stroke, and place the foot more quickly upon the ice when it reaches the centre line, on its return through the air after making its thrust.





IV.—ATTENTION TO SKATING GROUNDS

During skating time there is generally in the neighbourhood of towns a plentiful supply of men with chairs, who earn money by fastening on skates. These men are as a rule, little better than the dregs of the working class, and skaters should be careful to employ only such of them as behave decently, otherwise, unless the owner of the skating field, or some one in authority, controls them, the whole scene, instead of being one of pleasure, becomes such as ladies and respectable people will avoid. The "selection of the fittest," which we have recommended, obviates this danger. When however, snow falls upon the ice, some united action among the men becomes needful for the purpose of sweeping. Without this it frequently happens that the enjoyment of many hundreds of skaters is interfered with, and perhaps

entirely stopped. We have counted at about eleven o'clock p.m. upon the skating field thirty able-bodied men with chairs; of these only about ten could possibly be employed at any one time, the rest remaining idle, and not a single man was sweeping.!! Yet, the ice was so covered with snow that the skaters, after remaining twenty minutes or so, one by one left for home. If only two or three of the men had employed themselves sweeping a course upon the ice, the whole of the skaters might have enjoyed themselves during the remainder of the day. Results of this kind would be prevented, if skaters upon their arrival, when importuned to take a chair, would inquire "Is there a company who are having the ice swept?" and would make a point of patronizing such a company when it was formed, as it would be sure to be soon, as a "supply" in answer to the "demand."

Such a company should consist of four, or better of a larger number of men, who making a common money-bag, depute some of their number to be always sweeping while the remainder put on skates, changing about from time to time to rest the sweepers. They should have a lock-up money-box, into which all earnings are slipped; at the end of the day the box is opened and an equal division made of the contents. They should not beg about on the course for money, but trust to being paid by those who use their chairs and have their skates attended to, or leave their cloaks and overcoats, &c., for safe keeping. This is no ideal scheme, but is successfully

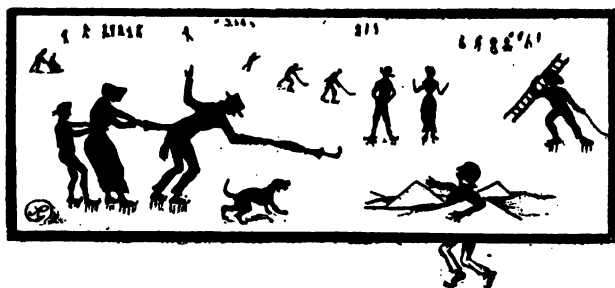
and, for the men, profitably carried out in well-known skating districts. The following suggestions are made for those gentlemen who have enough public spirit to superintend and arrange the sweeping of skating courses. Such men as we have been describing require and will be afterwards grateful for suggestions from any skater competent to direct and advise them. We say competent, for the choice of a proper course is a matter requiring some judgment and examination. Running



skaters prefer a straight course from one end of the field to the other, and turning at the end to go back by a second course parallel with it. As people like to skate in company, and near together, and to watch others, it will generally be found that providing the swept course be well laid out and well attended to, the fact of not being able to skate over the rest of the field, will, except for hockey-players, increase rather than diminish the pleasure of the sport.

To plan a course,—first skate once or twice up and

down the ground in the direction which seems most suitable, avoiding a line which crosses bad pieces of ice, and select some distant object at each end as land marks for the line of the course, then take a brush, or shovel, or short broom, and pushing it straight for the distant object mark the course as straight as it can be planned, turn at the end and come back again parallel with the first line, and at about 12ft. from it. These lines being joined at the two ends guide the sweepers, who sweeping the snow away right and left, gradually widen



the course. If it be widened to an 8ft. course, a space of 4ft. will be left between the two courses where the snow is heaped up and will form a good division. It should be borne in mind that the majority of skaters do not like a very long course even if it can be obtained; 300 yards is quite long enough, and 200 or even 150 yards makes a very good course for ladies or people in general. The width should never be less than 6ft., as a fast skater would actually require this width for his stroke, 7ft. is a

narrow course, but will just allow of passing, 8ft. is a good course, and would afford enjoyment if all were skilful skaters. But to allow of two going side-by-side and another passing them, 9ft. is required. If the course be crowded with people 10ft. to 11ft. is desirable. These widths are given on the supposition that all the skaters are going in the same direction. It is most important for the pleasure and safety of all, that every one should go the right way round, and should both keep and also pass on the proper side. At fig. 17, page 131, we give a diagram showing the proper method of skating on a confined course, (for convenience the course is shown very much shorter than it would be in reality). The arrows indicate the skaters and the direction in which they move. To make it evident to the mind that the ordinary rule for walkers applies to the skating-course, imagining for a moment that the centre line of snow is removed—then the rule of the skating-field will be seen to be exactly the same as the rule of the foot-path. Everyone keeps to his own right-hand side. And if one person desires to pass another, he turns out towards the left for that purpose. Going up and down the parallel courses divided by the centre line may be fairly expressed as going round, and in this sense all the skaters go the same way round, all turning towards their left hand; thus going against “the wind, the clock and the sun.” This way round happens to be most suitable for the turn in skating, as nineteen skaters out of twenty have a marked preference for turning to the left, the right side of the body being almost always

the stronger. By thus following our national rule of the foot path, it will be observed that all the faster skaters, wishing to pass the slower ones, will keep rather towards

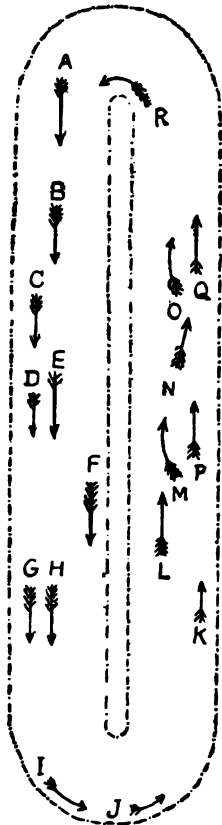


Fig. 17.

the left hand, that is towards the inside of the course and next the centre division line; while the slower ones will "hug" their right hand side, that is, the outer side of the circle. Passing ladies with long skirts is attended with danger to them and others, but they can themselves much lessen this danger by wearing a suitable dress. It should be a short walking dress, for if the skirt reaches very near to the ice it is almost impossible for the other skaters to avoid catching their skates in it. The arrows in fig. 17, are intended to indicate not only the direction in which the skaters move but also their size and speed. Thus D. J. and K. are supposed to be children, who, desiring to avoid all chance of collision, keep entirely to the right as also do some adults, I.

and Q. But A. B. F. L. M. N. O. and R., as indicated by the number of feather-strokes, desire to go faster

and some of these as F. L. R. keep all the time to the left having no one coming close behind who might desire to pass them. But the remainder A. B. M. N. and O., even if turning out to pass some one in front, immediately revert to the proper side because others are near behind them. When fast skaters, as G. and H., go in company side-by-side, they occupy more than their fair share of the course, and it is their duty to be especially particular not to go too much to their left.

We have thus shown under what conditions a fast skater *may* go on the left side of the course, but the general rule is simple enough—every one keeping to their right side unless when they are actually passing others. If people can only be induced to observe this well-known rule much danger and inconvenience will be avoided, and surely those who have made the course, or paid for it, have a right to insist that it should not be rendered almost useless as would otherwise be the case. But beyond these rules there will amongst gentlemen be various courteous observances of which the following may be cited.

Everyone must have the liberty to go as fast or as slowly as they please, and those who habitually go faster or slower than others give rise to no unpleasantness. But it is an ungentleman-like action to put on a spurt and pass others for the sake of ostentation, and then stop or relapse at once into a slower pace; for all attempt at competition, except by mutual consent, is an impertinence. Slipping in front of another skater, in the

manner we have described, is peculiarly rude and ungrateful, if done after skating behind him for some length of time, because in that case the first skater has been doing all the hard work by meeting the air and forming an incline in the ice, and thus affording rest to the one behind him. To keep in close attendance, immediately behind another skater for any length of time, should only be done with his tacit consent, and if he slackens his pace or pauses at the next turn, or replies coldly to any remark that may be made, it will be evident that he desires to give no warrant for skating with him.

To return to the duties of the course-keeper. When sweeping the course, it is best for him to keep steadily on at his work, leaving the skaters who pass him, to avoid the stroke of his broom. After the course has been swept, there will be more to be done in improving the turnings and widening in places, and in sweeping off any twigs, rushes, pieces of orange peel, &c., that may be about.

The strokes of the skates will always be cutting the ice into a fine powder, which, if not swept off, conceals the cracks, and renders them dangerous. When a crack has been worn dangerously wide, or when there is a hole right through the ice, it may be made more conspicuous by placing a small bough in it. It may even be needful to divert the course, if any part has become very bad.

If a company of sweepers have made a course, they should be supported in retaining the right to keep it the

next day, but if they neglect to do all that is needful, it becomes necessary that others should supplant them. If, before courses are swept, the half-melted snow has become frozen, the sweepers' work is immensely increased, and the same is the case if the snow be two or three inches deep, a skater going up and down with a sharp-edged spade or shovel will often be able to cut off the frozen snow, so that the broom can easily remove it. In some neighbourhoods where skating is much practised, a snow-plough of the kind used on the roads, but smaller, is kept to make skating courses through deep snow. It is a wedge-shaped wooden frame like the letter A, with iron hooping nailed along the bottom, and when dragged along effectually scrapes off and pushes aside the snow, leaving a clear course some 8 feet in width. It is constructed by joining at one end two 1-inch boards, (each 7 inches deep, and $10\frac{1}{2}$ feet long), at such an angle as to have their ends 8 feet apart; a cross-stay 5 feet long is placed between them, this of course does not touch the ice. Iron-hooping, or better still, 1-8 of an inch iron plates are fastened all along the outside edges, and projecting below the wood about 1-4 inch. No nicety of construction is needed, and the whole need not cost more than 10/. As shown in the illustration, page 126, one man guides it from behind by means of a rope tied through a hole in each of the hinder-ends; and several men pull it by a rope similarly fastened to a hole in the front. If there is not weight enough to cut off the hard snow, a boy sits on it.

With the requisite number of men, an excellent course can be made with this instrument in the course of a quarter of an hour. A smaller one with handles to push along, and capable of clearing about four feet in width, might easily be contrived. Providing the snow were not more than two inches deep, on coming back again the skater might increase the width of the tracts first cleared, so as to provide a fairly wide course.

People of means, who are desirous of encouraging the sport of skating, would do well to bear in mind that some acknowledgment, either by word of mouth, or a small testimonial, or a more substantial recompense, should be made to the owner of the field who has allowed the public to make use of the ice, for it is probable that he will have been put to inconvenience, and perhaps more or less loss, through gates being left open, and gaps made in the hedges. Through neglect of these acts of courtesy and gratitude, many pieces of water are allowed to run off, when perhaps, even a few words of thanks might have induced the owner to put up with the carelessness and rudeness of those skaters who show no such gratitude.

Chairs are always found to be a great convenience for ladies and others who are tired with the exertion of skating. A sledge chair, in which they can sit and be pushed from place to place, without danger of being overturned, adds much to their pleasure. Figure 18 represents a skating chair of this kind. It is so constructed that the movements of the skater who pushes it,

are not interfered with. By simply unfastening a thumb-screw, it can be folded up (See Figure 19,) so that although somewhat heavy, being about twenty-five lbs. in weight, it can be carried in one hand by a man, and can conveniently be placed under the seat of a dog-cart, or stowed away when not required. When srow

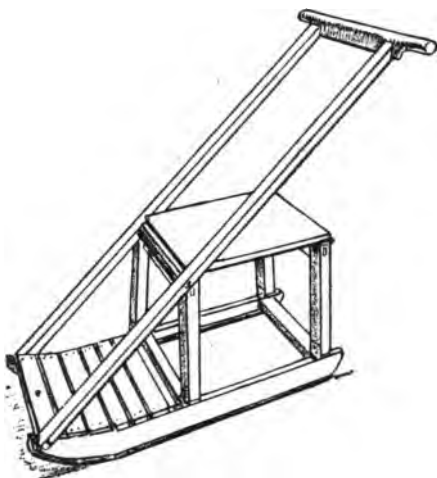


Fig. 18.

is on the ground, it can be pulled along by a cord with the smallest effort.*

* The Pictures given, and the following details will enable any intelligent carpenter to construct a deal chair of this kind. The following measurements are in inches. From side to side all parts are $14\frac{1}{4}$ inches. Seat $14\frac{1}{4}$ by 15 by 5-8, strengthened underneath. Legs 15 by $1\frac{1}{2}$ by $1\frac{1}{2}$, edges taken off. Side poles 50 by $1\frac{1}{2}$ by $1\frac{1}{2}$, edges taken off, morticed into the back, which is cut from a piece 25 by 27-8 by 1-3-8.

Although the thickness of ice required for skating is referred to in another place, we must here point out the especial danger of crowded skating grounds. When many people are seen to be skating about, and continuous cracking is not heard, we may conclude that the ice is more than $2\frac{1}{2}$ inch thick, and is perfectly safe. If it is thicker than this there is some truth in the saying that "ice which cracks never breaks" For, when ice is more than a certain thickness, mere numbers of people however thick they may stand, never lead to danger, except when the ice has already been cracked

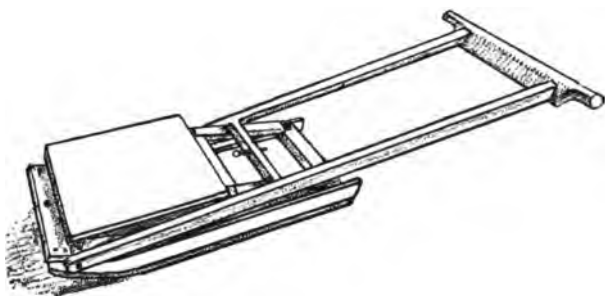


Fig. 19.

in all directions, and already consists of triangular pieces, although apparently whole. When in the latter

These poles are connected to the wooden runners by a 5-16 round iron rod with head and nut, and placed about 17 in front of the seat, and so that the handles are 14 above, and 5 behind the seat. The cross-piece, at the middle of the poles, rests on little brackets placed on the front legs, and it has a screw hole through it, by which it is screwed to

state the slightest thaw, by acting on the edges, rapidly increases the width of the cracks, and thus separates the pieces of ice, so that the whole surface is ready to give way without any sound of warning, if many people crowd together, or if a company of several heavy men going fast, cause waves to be formed on the ice. At the close of a skating day, when it does not freeze, or when, owing to a thaw, the surface of the ice is sloppy, and skaters have become bold through confidence inspired by numbers, prudent people will begin to exercise especial caution, and will avoid a crowd, and if they do not entirely leave the ice, will keep away from the neighbourhood of the fool-hardy.

V.—THE GAME OF HOCKEY.

The game of hockey is one that will have attractions only to pure lovers of sport. Cricket and football receive constant stimulus from the fact that the fair sex, old players and lookers on in general, are present to admire and applaud the skill of the combatants. There can be

a screw-plate let into the cross-piece under the seat. The front legs should be connected at the top and bottom by two cross-pieces $2\frac{1}{4}$ by 7-8, and the hind legs should be the same, (these are not seen in the pictures). Four hinges, flaps, 2 by $1\frac{1}{2}$ wide. Wooden runner 39 by 7-8 in. deep under the seat. Foot-boards 2 by 5-8. The two cross-pieces, on which the legs stand, and are hinged, $2\frac{1}{4}$ by 7-8. Iron runners like skate-irons, 39 by 1 1-8 by 5-32 (bottom edges not rounded off), rising 3 at front, and 1 at back, but quite flat for 25, viz. under, and 10 in front of the seat. These irons project $\frac{1}{2}$ under the runners on which they are screwed. Screws used in all parts.

very little of this sort of thing in hockey. It is however, a game enthusiastically played, and intensely enjoyed by those who are able to take part in it. It is not so dangerous as football ; certainly not to be compared with the latter, when played Rugby fashion. Hockey on the ice is the counterpart to bandy on terra firma, the method of the two games being substantially the same.

Fig. 20, page 140, shows the shape of the sticks suitable for this game. They are usually termed "bandies." For toughness, lightness, and shape, the bandy is made of the bough of a pollard willow tree, or of that of a pollard ash or ground ash, which more often grows in the desired curve ; to prevent it slipping in the hand, the holding parts of the handle may be bound, as is a cricket bat. Hitherto, bandies have not been sold in shops, but are either cut by the player, or are ordered of a village carpenter.

In default of obtaining such a one as we have described an ordinary strong walking stick may be played with, but it will be at a great disadvantage, when used against other bandies of the more suitable shape. A stick such as is shown in Fig. 20 A, may to the uninitiated, appear a dangerous weapon, but in practice it is not so, for in the hand of a skilful player, it is used for carrying on the ball by shoving and guiding, and only occasionally is it used for hard knocking. It is needless to fix any limit to its length or thickness, because excess in either of these respects, is a disadvantage to the player himself. Older and less active players will prefer the

bandy of the full length of about 39 inch, as is shown in the picture A, which would weigh about one lb. ; but a younger and more active player bends down closer to his work, and would thus find the extra length interfere with the movement of his limbs, he would therefore cut it about 3 inches shorter at each end, and as he is continually changing it from hand to hand as occasion requires, he often prefers it of a less crooked form as shown at (B.), the weight would thus be re-

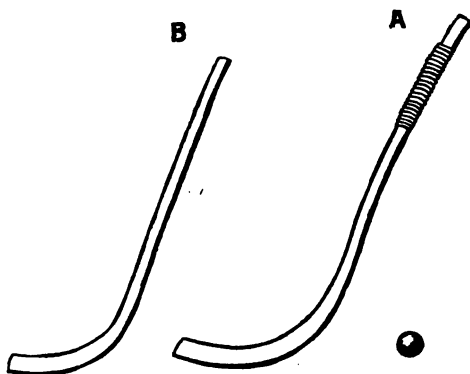


Fig. 20.

duced to little more than three-quarters of a pound. All bandies should be flat at both sides of the lower end, and the handle is somewhat flattened also, being only about 5-8 of an inch thick. The game is usually played with a ball from 6 to 7 inches in circumference. It should be a solid ball, made of gutta percha, covered with India rubber. There should be a relay of balls in case of one

or two being lost, balls costing 1d. or 2d. each will do. Fourteen or fifteen players on each side makes the best hockey match, and for this number an ice field of 6 to 7 acres is required. The goals should be 200 to 220 yards apart, and the length of the field should be about half as much more as the width. But 4 or 5 acres of ice will afford good sport, and especially for a smaller number of players, say ten on each side. The width of the goal is generally about 15 feet for the larger number of players specified—but may vary from 10 to 20 feet according to size of field, number of players, &c., &c. Less than 150 yards between the two goals would be too small a field for a regular match, as scientific play could then hardly be shown. The line of each goal is fixed as in football a few yards (say 10 to 15) from the ends of the field. (See fig. 21, page 144). These lines are not necessarily marked in any way. The goal is shown by a snitable mark at each side, such as a mass of snow, thick pieces of ice, a clod of clay or a sod of earth cut from a grass field or even a coat doubled up. If a short stick with a flag on it can be stuck upright into these, the goals will be more conspicuous; marks might also be placed on each side of the goal to indicate a bye; sometimes ozier wands are stretched over in an arch from side to side and about 7 feet high, but no holes should be made in the ice, or the water will come up and interfere with the game. The players are divided into two opposing companies, each under a captain. A conspicuous difference in the general costumes of the sides is

of a great advantage, but coloured ribbons tied round the arms will be sufficient to render considerable aid to the players in distinguishing between friends and foes.

The object of the players is to knock the ball through their opponents goal and to prevent it going through their own goal. No code of rules has been formulated for this game, and even when this shall have been done much will of necessity be left to the right feeling and courtesy of the players. If there is any instance of roughness or unfairness in playing, a hint should at once be given to the transgressor. If this will not suffice, the matter should be brought before the captains, whose duty it is to insist upon proper play. The following rules will give some idea of the manner in which hockey should be played.

1. The game is commenced by one player taking the ball and standing in the centre of the field ; the others grouping themselves at their discretion. The holder of the ball then throws it straight up into the air, and when it falls it becomes general property.

2. During the play the ball may not be taken in the hand, but may be stopped and struck by any part of the body and skate or bandy.

3. If the ball is knocked off the ice on either side or over that line which is considered the boundary, it may be picked up by the first comer who must take it back as near as possible to the place where it left the field, or where it crossed the boundary, (as this gives rise to disputes, the rule is sometimes altered so that the ball

has to be thrown or placed opposite the point at which it comes to rest). The player having the ball in hand may chose his own time and may either have a free hit or may throw it anywhere in a line across the field, but not obliquely.

4. If the ball is knocked behind the goal line it is "a bye," and one of the owners of that goal has a free knock off from any point either behind the goal or within six yards in front of it.

5. If the ball is knocked through the goal "the goal is made," and the winning side take that goal instead of their own and the game is started again, as already described, by another throw up in the centre.

6. If half the time for the match expires without a goal being made, play is stopped, and the sides change goals and commence again by a throw-up in the centre.

7. The bandy must never be thrown out of the hand, nor may it be swung about with the intention of hitting or intimidating or of catching or tripping an opponent. Nevertheless, for the purpose of preventing the ball being hit at that particular moment, the bandy may be used to hit, catch, lift up or bear down the bandy of an opponent.

8. No intentional catching by the hand of any part of an opponent's body, clothes, or bandy is allowed.

9. No intentional running against an opponent, or intentional interposing of the body between him and the ball is allowed, nevertheless, the ball itself may be moved so that it is protected by the body. It is a well

understood thing, that none of the opponents may stand in the goal or near to it, so as to impede the goal keeper, nor should they stand immediately in front, when the ball is knocked off, so as to necessitate a block.

Though adherence to the spirit of these rules will not of course entirely prevent all collisions, it will greatly lessen their number and force. It is not good play to take the ball off to a remote part of the field with no particular purpose, and endeavour simply to keep it

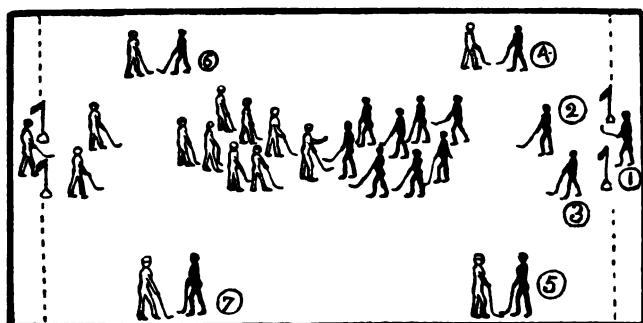


Fig. 21.

away from others; this only leads to loss of time without helping to make a goal or even a bye.

A captain who understands the tactics of the game will pick out some of his players, and assign them particular duties. The diagram Fig. 21, roughly indicates some of the positions. The goal-keeper (1) is the forlorn hope of the party of defence, for he stands close in the goal to stop the ball at the last moment.

Although his post is one of responsibility it is in the

main, one of repose, and every fifteen minutes or so, another player needing rest is deputed to take this post. (2) and (3) are placed fifteen to twenty yards in front, and form an outer line of defence. Rushing to meet the one who brings up the ball, they compel him to strike it towards the goal while still at a considerable distance. This enables the goal-keeper to stop it, without fail. (4) and (5) are two of the best players who stand ready to receive the ball, if driven towards them out of the scrimmage, and to make a dash with it towards the enemies' goal. (4) and (5) when in need of a rest change with (2) and (3). The positions (1), (2) and (3,) and perhaps (4) and (5) should never be left unoccupied. The rest of the players will generally be grouped near the central line between the two goals, and will play according to their own discretion. As a rule, there is a great deal too much indiscriminate play in merely knocking the ball backwards and forwards, which rarely leads to a goal being made. The real interest and art of the game are brought out when the ball is passed from friend to friend, until it is carried out from the general scrimmage, and is taken up by a clever and fast player, who makes a determined attempt to carry it through to victory. He knows that it is almost useless to drive it in a direct course for the goal, for that would be passing through the very camp of the enemy. He therefore chooses an oblique line towards the enemies' end of the field in any direction which appears to be most clear of opponents. They on their

part dart in pursuit, not meeting the line of his course directly, or he would, by the slightest change in the course of his ball, give them the slip on whatever side he chose, but they strike obliquely towards his course, and thus oblige him, in order to retain the ball, to drive it still further from the central line. If he can elude one or two of these attacks, he has drawn some of his enemies from the front of their goal, and has lessened the distance of the ball from their end. But as a set-off to these advantages, the ball must very soon have its direction changed, by his turning it inwards towards the goal. This he does, choosing the best opening he can find between the serried ranks of his opponents. Now he encounters a host of difficulties, and he will perhaps fail in his attempt, though even in the sight of victory ; if however, he can elude the advance guards, he takes the ball right up to the goal, when a well-aimed hit may send it through in spite of the goal-keeper who has strained every nerve to stop it. If however, he cannot elude the front guards, he may perhaps, by a long shot, knock it past them with like effect. Even if this fails a melee will ensue in front of the goal, and a well-directed hit by one of his own side may yet make the goal. There will perhaps be only one or two of a party who have the skill, activity, and speed to accomplish such a feat as we have described, but others can render valuable help' by following close up, ready to carry on the ball when possession of it is lost by the first players, and by their mere presence they will hamper the enemy in pursuit. Then

again, if they are on the opposite side to the player who is carrying on the ball to their goal, while they cannot actually outpace and take the ball from him, yet by resolutely rushing for it, they immensely add to his difficulties and anxiety, and often take away the choice he would otherwise have for the path of the ball. Hockey is the game of all others which will bring out the full energy, vigour, and activity of a young man. In ordinary running-skating, the chief exertion is in starting and stopping quickly. Hence, hockey, even if temperately played, is far more tiring than a continuous journey on the ice, even at very great speed.

The "standard hockey skates" referred to at page 76 are made extra strong in the blade, and with double the amount of curve at the bottom so as to render turning easier, while they are sufficiently flat to take hold of the ice by a considerable portion of their length, and so to admit of considerable speed.

A slow running-skater can hardly be a first-class hockey player, but he may do much useful service to his party. On the other hand, while a first-class racing skater may be a first-class hockey player, the continuous scratching for the purpose of starting quickly will have a tendency to spoil his racing stroke. Every athletic figure-skater, having skates well strapped on, should join in the game whenever he has the chance, for he will thus find a new pleasure in life, and may discover that he has powers hitherto unknown to himself.

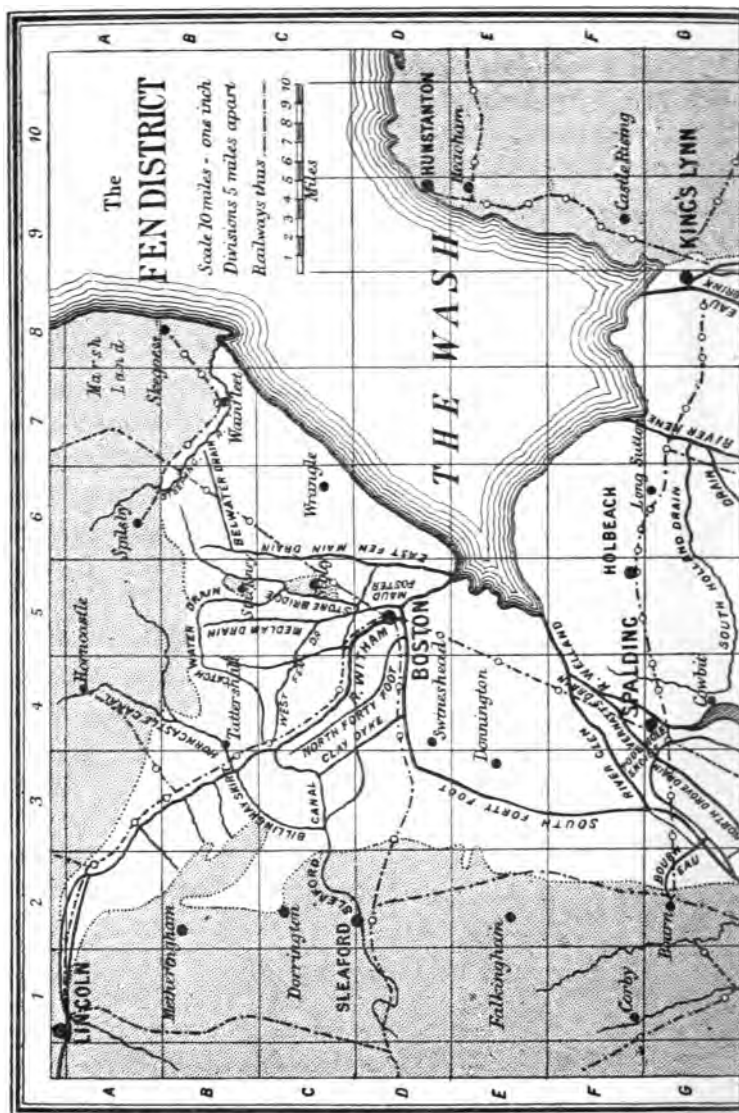
Of course hockey cannot be played on a field where

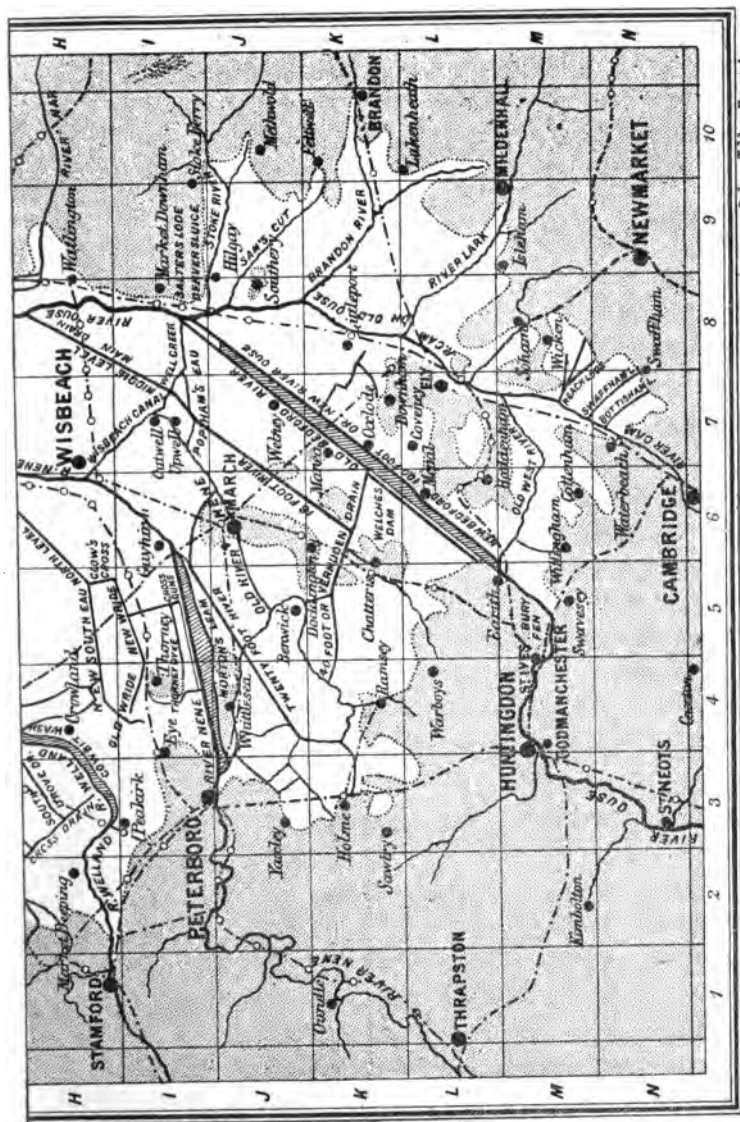
there are a great number of skaters, but if there are only a few, the hockey players, by confining themselves to one side only of the field, will not interfere with the general sport.

As this book bears the name of Fen skating, we may mention that Bluntisham and Earith (Hunts.) having the advantage of their fine piece of flooded land at Bury Fen, have produced some of the finest players. Swavesey (Cambs.) has played several matches and have one of the best skating fields. Chatteris and Cottenham have of old been noted for their players. Nor are the gentlemen of Huntingdon and Godmanchester far behind, their training grounds being on the flooded meadows in the parish of Hartford. In the Fens and its surrounding towns and villages there are doubtless many hockey teams of equal prowess, but those we have mentioned are better known from their matches having been reported in the newspapers.

Since the foregoing was written the Bluntisham and Earith Hockey Club have drawn up a code of rules which we give in Appendix A.










EXPLANATION OF THE MAP.

HE map on the preceding pages was prepared by MR. SIDNEY TEBBUTT, who has been at considerable trouble in collecting information concerning the highways for skating, and has furnished us with copious notes upon the subject. These we have endeavoured to embody in our text.

The map embraces the whole fen district, which occupies parts of Cambridgeshire, Lincolnshire, Norfolk, Huntingdonshire and Northamptonshire.

The highlands or uplands, which surround the fens, and occur in insular fragments in its midst, is indicated by dotted shade.

The fen land is left plain, and the various rivers, main drains and other water courses which are best suited for skating are shewn; there are, however, many others which from narrowness, growth of weeds or other causes are not so eligible, and these have been omitted to avoid confusion. For the same reason the roads

have not been inserted, but the railways have been shown and the stations indicated thus — . — O — . —

The washes of the Ouse, Nene and Welland, which are always overflowed in time of flood or high water, are indicated by linear shade. The figures and numbers at the margin of the map are used for reference in the appendix, where further details are given.

All the principal towns adjacent to the fens including Lincoln at the north and Cambridge at the south are given, and also those fen villages which lie contiguous to the water courses.

N.B.—The railway from Ely to Soham has been accidentally omitted.



GEOGRAPHY AND TRAVELLING.

THE general facilities which the Fen country afford to those who delight in the incidents of travel and change of scene, and who consider these to be a great augmentation of the joys of a mode of locomotion which comes nearer to the flight of birds than that of any method of progression of which man is capable, have been already pointed out. It is necessary, however, that we should enter into some further detail, in order that our readers may safely and readily secure the somewhat rare opportunities which present themselves. The great plain of the Fens lies on a dead level, which is almost the same as that of the mean height of the waters of the ocean, and is traversed by four great main rivers. These are, beginning from the north and proceeding southward, the Witham, the Welland with its affluent the Glen, the Nene, and the Ouse with its tributary the Cam. These are not only confined and carried through the flat country by artificial banks, but even their beds and their courses are to a large extent, artificial. Each of these has a town where it enters the Fen country and another where it approaches the sea. These towns were

anciently of great importance, and some of them are still considerable. Thus the Witham has Lincoln at the upper and Boston at the nether end of its Fen course. The Welland has Deeping and Spalding. The Nene has Peterborough and Wisbeach. The Ouse has St. Ives and King's Lynn. While the Cam has the university town of Cambridge where fen and highland join.

The Witham is defended by a sluice at Boston, but the three southern rivers are open to the incursion of the tide which is felt more or less throughout the whole of their course through the fens. The Welland has a sluice a little below Stamford which is about thirty miles from the sea. The Nene has none below Peterborough, which is about the same distance from the ocean. The last sluice on the Great Ouse is at Earith "Stanch," (sometimes called Bluntisham Stanch), which is about 36 miles from Lynn and nearly 40 from the mouth of that river. The waters of the Cam are defended by the great sluice at Denver. The rivers open to the tide are of course seldom frozen in their lower reaches, though this is felt so little at the upper part of their fen course that skating is often to be had for very considerable distances below the lowest sluices. The best fen skating, however, is to be had, not on the main rivers, but on the artificial cuts used for the purpose of draining the fens themselves. All these are defended at their lower ends, some by sluices which only allow the water to flow out, and are closed by the outward pressure when the tide rises ; some by gates placed under the control of watchers, and many by

solid banks, the water being thrown over these by engines and windmills. The Middle Level Drain, which carries the water of almost the whole of the vast district called the Middle Level, had at its lower end a system of syphons, through which the fresh water discharged itself when the tide was out, while the connection was broken when the tide water of the Ouse rose to a higher level than the water of the drain. These are now replaced by a sluice. The system of Cornelius Vermuyden, though scarcely satisfactory to the engineers of the present day, or to the proprietors of the fen-land, is highly so to fen skaters. By this system subsidiary channels were carried parallel to the old water courses, and the space in between was left as a reservoir for the upland waters when these came down faster than the rivers could carry them away. In going into detail, perhaps it will be as well to commence at Cambridge, (the most populous starting point). Till quite recently Cambridge was unfortunate in its skating grounds. The river is so near its source, and so tortuous and full of eddies, that it is seldom that any skating can be had upon it above the town. An excellent piece of meadow skating has, however, of late years been secured at *Lingay Fen*, near Granchester. This meadow lies in the angle between the main stream of the Granta and Bourne Brook. The third side of the triangle is made by the London and North Western Railway. This can be flooded at almost any time, and its isolation enables the tenants to secure gate-money by guarding all other approaches and throwing a bridge across the brook at

which they take their toll. This may, perhaps, be considered a questionable advantage to the public; but as the charge is moderate and ladies have hitherto been admitted free, and some care has been taken to secure a good course and communication between the two fields which once were divided by hedge and ditch, we have but little reason to complain. Lingay Fen is rather over three miles from Great Saint Mary's Church, and can be got at either by the main road to Trumpington (locally called the Grind), or by the footpath through Granchester. The entrance is from the road running from Trumpington to Granchester at that angle of it which lies a little to the west of the watermill, which is embalmed in the roaring fun of Chaucer's Reeve's tale. There is also a field, lesser but nearer, at Newnham, called Preston's Field. The growing population of Barnwell also now rejoices in an ice area on Stourbridge Common, which is one of the first to bear and affords room for a course of 660 yards. Those bent on travelling will find their way to the river across Midsummer Common or by Gas Lane, and so on to the river. From thence, if there has been a previous week of hard frost, including at least one night in which the thermometer has sunk to 20° below freezing point, the skater will get a run of 33 miles, the ice becoming safer as he goes. He will encounter two locks and a most vexatious number of ferries which are kept open as long as possible, not so much for the purpose of taking toll of the rare passengers who cross the river, as from the numerous

skaters who wish to get to Ely by the ice. Thus, as at the Nile Bridge at Cairo, it is not he who is helped but he who is impeded who has to pay.

When the frost has been only moderately severe, at each ferry floats, unfixed, an idle boat with a dozen ducks dosing out the weary hours on an eight-foot cross-cut, with their heads upon their backs or standing on one leg on the ice beside it, and contemplating their narrowed circumstances. While on the ice there stand two or more stalwart sons of the soil ready to assist the traveller's tottering steps over a track of straw and to relieve him of a few coppers. It is well, therefore, to start with some two or three shillings worth of copper coin, (unless the tourist prefers the Dutch method of jumping). He may be assured that he will get rid of it all, and enter upon the fen country, where he will have more sea-room, unballasted not to say crank. Of course if the young gentlemen of Cambridge prefer to become a real blessing to the riparian labourers, then out of employment, by scattering shillings instead of pence, there can be no objection.

During that debateable time which furnishes an excuse for these exactions, one should be willing to pay for civil help, but when we found a stalwart fellow at Bottisham lock, when the ice was firm and thick right up to the side, with a huge crow-bar, breaking away a broad margin, in order to compel skaters to go over his plank, and to take toll of them; we gave him our mind on the subject, having first taken the pre-

caution to cross the impediment. Whether it was that our lecture was convincing, or that Jack Frost was too much on our side, we know not, but we were pleased to find next day that the breach was healed, the path open, and that the foot-pad had decamped.

It is a serious hindrance to some travellers that each of these entrenchments is flanked and commanded by a public-house. Those who can never surmount such works without further fortifying themselves, are apt to find themselves at nightfall "*Five miles from anywhere*," or taking a bed with "*The Pike and Eel*." A good sharp frost mends the way best, and last season we found only one wide open ferry. Supposing the traveller to have overcome these difficulties, below Bottisham lock he will have left behind him well nigh all lets and hindrances, also, all elms, and oaks, and hedges, and have entered the land of windmills, engines, and pollard willows, and banks that bar the view. Continuing his course along the main river, Reach Lode is announced by the pumping engine which casts its water over the right bank. Should he explore this Lode, it would lead him straight to the huge ancient barrier called the Devil's Dyke, which ends where the Lode begins, for the East Angles needed no better defence in those old times, against their troublesome Mercian neighbours, than the bogs of the fens then furnished. Wicken Sedge Fen too, with its rare ferns and flowers, butterflies and moths, now in their winter rest and chrysalis state, is indicated on the same side by the comfortable little inn, which overlooks

the ferry, and where many a naturalist has found rest after his loved labours.

About three miles from Ely, at a place once called Harrimere, a stream runs in on the left at an acute angle. This is the old West River. It is the remnant of what was once the main branch of the Ouse. Though shorn of its ancient glory by the Dutchman who conveyed the waters of the Ouse straight to Denver by the Hundred-foot cut, it is still good skating ground. By it one can pass under Stretham stone bridge, and past the place where William the Conqueror carried his causeway to the Camp of Refuge ; and so on upward to the Hermitage close to Earith Bridge Station. It would be better still as an ice highway if it would altogether cast off all its old pretensions of carrying the Ouse waters, that is, if the "Hermit" at the Hermitage, now represented by a "water-side character," having command of the sluice there, did not now and then, in a most capricious manner, send down a little Ouse water, and so cause the ice to arch up its back like an angry cat, and present a surface like a house roof, with an open crack where the roof-tree should be. It is by this old river that the inhabitants of Rampton and Cottenham find access to the fen by Rampton Lode. The amateur champion of England, resident at Willingham, also, can only reach the fen district by way of the engine drain which delivers into the Old West. From Harrimere to the Hermitage is about twelve miles—an hour's easy run if ice be good—with such enfranchisement and free scope beyond as

belong to the main channel of the Ouse. If, instead of making this digression, the traveller continues along the Cam from Harrimere, leaving the Old West on his left, he will soon see the splendid Norman tower and lantern of Ely cathedral, surmounting the white haze which in winter so often lies lovingly around "The Isle." After a run of about seventeen miles, which under few circumstances, can be accomplished in less than two hours, while such various hindrances are met, the town of Ely is reached. It is as well to point out here, that the railway station, with its refreshment room is, as an Irishman would say, very *convanient* to the ice. The dock, near the station, being free from current, freezes quickly, and is long enough for racing purposes. The wash land lying along the sides of the railway on the east side of the city is very often flooded, and makes a fine skating ground. Londoners who wish to visit the Fen in time of frost, can hardly do better than take up their quarters at Ely. If the traveller will continue his course, let him be careful how he shoots under the bridges and through the town, and remember the motto, "*via trita, via tuta,*" "Beaten tracks are safe." Having passed the town, which he can seldom do without a few steps ashore, he enters on plainer ground, and may race the locomotive engine down to Littleport, unless he prefer to go in for a *Lark*, as the tributary is called, which comes in temptingly on the right. By this he could explore the region of Prickwillow, Isleham, and Mildenhall. At Isleham reside N. and J. Brown, two good strong

skaters who have in their time won many a fast heat. Four miles below Littleport the entrance of the Little Ouse, or Brandon river, is passed. This little river forms in its upper course the boundary between Norfolk and Suffolk, and at one time was, with its tributaries, the Wissey and the Nar, the sole source of the water which passed to the sea by Lynn harbour. Brandon where the Little Ouse enters the Fen is thirteen miles away, and very often this part will not bear when the main stream is quite safe. In proceeding to Denver sluice the islands of Southery and Hilgay are left on the right hand. They are the outlyers of the Norfolk highlands, and are surrounded by the fen land. Larman Register still lives and farms at Southery, surrounded by the skating heroes of thirty years ago. At Denver sluice, which is a work well worth examining, we are brought to the point where the main waters of the Ouse unite with those derived from the Southern borders of the fen over which we have been, in imagination, travelling. Here the traveller will find himself in a *cul de sac*, for the waters of the Ouse at this part are scarcely ever frozen so as to bear, and if they were, it would still be difficult to get upon the central parts of the river because the body of the ice moves up and down with the tide and thus the edges are broken. A walk of two or three miles will take him by Downham Bridge to Salter's Lode, and from thence he has many courses, to be detailed afterwards. The distance from Cambridge to Denver sluice by river is about thirty-three miles ;—

it being about seventeen from Cambridge to Ely, about five from Ely to Littleport, six from Littleport to Southery ferry and five more to the sluice. This route has the advantage of presenting to the eye a considerable change of scenery. The highlands are scarcely ever out of sight, for when the spurs of the uplands which run out from the south fade from the sight, the Isle of Ely, crowned with its cathedral, comes in view, and these have scarcely been left behind before the western highlands of Norfolk become visible. While, however, the lower part of the river, being defended from the tides, soon becomes consolidated by frost, the upper portion, being near the springs, is often dangerous. The stream, though apparently sluggish, will, if the frost be not continuously severe, wear away the ice and render places, previously safe, insecure. Indeed, on the slightest thaw the river becomes exceedingly treacherous, and the writer has witnessed many immersions, and suffered some, at a time when there has been perfectly solid ice, not only on the stagnant rivers of the rest of the Fen, but even on the Hundred-foot river. Last season, two young men from Cambridge, lost their lives near Bottisham, from this cause, almost before the thaw set in.

Let us now transport our readers to the valley of the Ouse, and let our starting point be Huntingdon. This pleasant little county town is fully ten miles from the Fen, but the country is comparatively flat, and the Ouse is broad and sluggish, and divided into steps by mill dams and weirs, with but little fall between them. Hence

there is often good skating upon the Ouse right up to Bedford, and even beyond. This skating occurs however, only at intervals, for, not only do the locks obstruct the traveller, but the stream, sluggish though it be, is sufficiently strong and constant, to keep open portions of the river wherever the bed is unusually narrow, or the turns abrupt. These openings are locally termed "wakes." Whether this is on account of the contrast between the active water which moves on their surface, when compared with the rest of the ice-bound river, we must leave to philologists to decide. These sometimes stretch right across the river. Thus, while very good skating is often obtained at St. Neots and Bedford, and other places, it is very seldom that a skater can make his way up the river without many breaks and discomforts. These "wakes" usually occur at the same places year after year, though modified in size and shape by circumstances. At Huntingdon itself, the river is broad, and generally freezes quickly, but, a little below it, and in the neighbourhood of Hartford church, where the river is narrow and tortuous, there is always open water, sometimes with narrow strips of available ice on the inside of the curves, and sometimes without these rather risky passes. This state of things on one occasion produced a singular and rather awkward result. For after a long frost succeeded by a thaw, the river was left open at Hartford, while below Huntingdon Bridge was a sheet of sound ice on which a large number of people disported themselves. Suddenly a large piece of

ice with some 50 people upon it parted from the rest, and slowly floated downward, breaking up as it proceeded. All these unwilling voyagers escaped, some dry and some wet, but the fright was so great, that some of them have never ventured on the ice since. Huntingdon has been the scene of very many races on the ice and it is well fitted for such encounters. Indeed, in no other place is the spectacle so picturesque. The bridge is ancient and massive, and a very striking object. On several occasions the course has been through the arches of the bridge, which on such rare occasions has been crowded with spectators, and the whole scene was remarkably effective. It was on this course that Tom Watkinson beat Carter in January, 1875. On a previous occasion the reach above Godmanchester was made use of, and the railway bridge then became the point of vantage. The most singular rendezvous of the racers was that which they made use of in 1867, when they met and competed on the Huntingdon race course absolutely where the horses run in the summer time, the grand stand being used for the accommodation of spectators. On both of these occasions S. J. Smith, of Holme, was victor, and as he was looked upon as the local candidate the excitement was great. Hinchbrook House, once the abode of the Golden Knight, (uncle to Oliver Cromwell), and now the seat of the Earl of Sandwich, lineal descendant of Pepys's patron, overlooks both these localities, and is almost within the range of the eye. It is here, and we believe only here, that noble patrons have

assembled in goodly numbers to view the contests. The Duke and Duchess of Manchester, Viscount Mandeville, Earl Gosford, and the Marquis of Hartington, and many more here witnessed the exploits of men who may well have been the descendants of those *Ironsides* whom the Great Protector calls "a lovely company" of "plain honest men, patient of wants, and faithful and conscientious in their employment." The meadows below Huntingdon at Hartford, Witton, and Hemingford are readily flooded, and bear with but little frost. On one occasion the volunteers in full uniform and equipment appeared on skates on these meadows and went through their evolutions with fewer catastrophes than might have been expected, for all of them, both officers and men, were in some measure acquainted with the art. Between Hartford and Houghton there is a very fine broad part of the river called Houghton *Whale*. This is so wide that it afforded room last year for some fine games of "hockey" or "bandy," the Huntingdon and Godmanchester men being great proficient at this fine sport. They are, perhaps, unequalled except by the men of Bluntisham and Earith, who claim never to have been beaten. Between Houghton and St. Ives the river is not so good for skating purposes, and the traveller is delayed by many obstacles. Nor do the meadows lend themselves so readily to the sport, for, while there are some splendid meadows at Hemingford and St. Ives, these are entirely without embankment of any kind. Hence, though they are constantly flooded, no sooner has the ice been formed and

the flow from above been checked, than the water which sustained the ice runs off from below it and leaves it hollow. Such hollow ice is called *cat's ice* and is very brittle. Above St. Ives Bridge, which is equally picturesque with that of Huntingdon, and is flanked by a fine old "house with seven gables," there is often a good piece of ice for skating. Proceeding downward past Holywell to Overcote, we find there a ferry and a little stream comes in on the right from Swavesey. This stream has some low ground adjoining it which is often flooded, and has in time past afforded some excellent skating. This meadow, known to the inhabitants of Cambridge as Swavesey meadow, is the place whereon the National Skating Association may be said to have originated after the grand match of the 28th January, 1879. Leaving this fine arena on our right, we proceed onward to Earith stanch, which is the last bar on this river, and immediately below it on the left is a skating arena which is even grander than that of Swavesey. This is called Bury Fen. This fen is very readily flooded, and the water can be held up easily. The owners and occupiers have always been very hospitable, and the public has always been welcome. Unfortunately, the gates by which the water is allowed to run off, when desirable, are not always in good repair. The championship race was to have been run on this Fen last season, but at the last moment some malicious person is said to have opened the gates and let the water run off. When fully flooded, from above Bluntisham Church to Earith village, this sheet of

water is more than a mile long by a quarter broad, and on it are played the best hockey matches in the kingdom. The new railway from St. Ives to Ely has cut it in two, but still it is one of the best skating grounds in the Eastern Counties, and visitors have easy access to it from Bluntisham station, three-quarters of a mile distant, or from Earith Bridge station, which is about one mile distant. Continuing our course down the river we pass Earith. Just below it on the left, are the gates through which the water in time of flood is let into the head of the Old Bedford river and through it to the washes. A quarter of a mile further, on the right, is the Hermitage sluice already referred to, which communicates with the Old West. Immediately after passing this the skater turns sharply to the left, passes under the suspension bridge, and enters upon the straight artificial cut called the Hundred-foot or New River. Four miles down, the tourist passes under the wooden bridge at Sutton, and after another mile comes to Mepal bridge. Here it is well to enquire what is the state of the ice on the river below, and if the report is unfavourable, it is better to cross to the Old Bedford river. For, even though the river may bear well enough, there are sure to be places, where, in the earlier stages of the frost, the ice has been piled up by the tide, layer on layer, while some fragments are tilted into a perpendicular position. When such masses of piled ice only occur at intervals with smooth ice in between them, they are often interesting as marking the battle-fields of the tide and frost

on each succeeding day, and it is a pleasant change to thrid one's way through the confused maze, but when the struggle has been so indecisive, that the whole river for miles consists of dislocated and ill-set ice, it becomes monotonous and vexations. The writer has often skated down below Welney Suspension bridge, and on one occasion went to within less than a mile of Denver sluice, but had to return as he went, as it was impossible to get to the side, for the ice was loosened from the edge by the rise and fall of the tide, and, though it would have been perfectly easy to leap the chasm, the shores were so clothed with a coating of hummocky ice that such an attempt would certainly have resulted in sousing the adventurer in that which an Alpine climber would call a Bergschrund. In times of low water and slight frost, the alternative road from Earith to Salter's Lode by the Old Bedford river, is the only available one. This river derives its name from the Earl of Bedford who was the chief of the *adventurers*, at whose risk the cut was made. It should be understood, that this river which was originally meant to carry the waters of the Ouse right through, has ceased to be so used, since the Hundred-foot was constructed. Now, at its upper end, it is simply a channel through which the washes on its right are flooded, while at its lower end it carries water thrown into it from the northern side. Indeed, at Welches dam the bank crosses its old bed, so that its upper portion is completely cut off from its lower course, and the skater, who starts from Earith, and wishes to go

to Salter's Lode, must cross the bank at some part of his course. Just below the seven holes (often called the nine holes,) the rush of the water has excavated a deep pit, and the channel below for a few hundred yards is pretty good, but inasmuch as the water for the most part rushes over to the washes on the right, there is no stream lower down in the old channel, and this is consequently grown up with rushes and reeds. There are also a good many springs in the old river bed, and some of them are supposed to be warm springs, hence, the skater finds himself at this part "bound in shallows and in miseries." Further down the old river is better, but the traveller cannot do better than to get over the left bank as soon as possible, and so on to the Counter wash drain which is continuous with the lower part of the river. This however, he cannot do until he has proceeded $1\frac{1}{2}$ miles from Earith, as the Counter wash drain commences at that point. When once on the Counter wash drain, his course is clear. He passes Sutton Gault and Mopal bridges, and then, at nine miles from Earith, arrives at Welches dam, where the Forty-foot river comes in from the left. This river leads upward to Chatteris and Ramsey, but there is a sluice at its junction with the Old Bedford. Continuing his course, the skater, after three miles good skating, passes under the Great Eastern railway bridge near Manea station. Another three miles brings him to Welney—the metropolis of the skating country. From thence to Salter's Lode is six miles. In time of flood, the whole wash,

lying between the old and new rivers, is available as far down as Welmore Lake sluice. Traversing this extended wash, and passing the various rails, holts, and roads which run across it, has all the excitement of a steeple-chase. Sometimes when the rivers will not bear, a very shallow depression lying between the bank and the water course, will do so. The water lying in this hollow, freezes most readily, and the ice so formed, often lies upon the ground. Thus, the skater traversing it finds himself gliding over an uneven surface, and subject to sudden accelerations and retardations of speed, which are rather unexpected. This however, is by no means unpleasant, nor does it lessen his speed materially, if at all. After a severe frost, the best course for the twenty-one miles is to start on the main Hundred-foot from Earith, then cross at Mepal to the Counter-wash, and so downward. In passing the little inn at Mepal, the traveller will often see hung from the beam sustaining the sign-board, a leg of mutton garnished with pink ribbon, which is to be the reward of the successful competitor in the race which almost daily takes place during the frost.

At Salter's Lode Sluice, the tourist, if in good heart, would do well to cross over the bank to the left, and so get on to Well Creek. He must then turn his face almost in a directly opposite direction, and so proceed to Nordelph—once the home of Gittam and Young. Gradually turning to the right or northwards, he passes over the Middle Level Drain, and arrives at the long,

straggling village of Outwell, and thence by the Wisbech canal to Wisbech, which is the metropolis of the fen country. There are several locks on this canal, and its guardians have a habit of running off the water from below the ice in that portion which is near Wisbech. In this case the tourist has to skate on a plain inclined sideways at an angle of from 20 to 40 degrees. This however, is not difficult if the ice be not also broken up or bad in quality. From Salter's lode to Wisbech is eleven miles, and this canal is the connecting link between the waters of the Ouse and those of the Nene. That portion of it which lies between Outwell and Wisbech was the old channel of the River Ouse which once delivered its waters to the sea by Wisbech.

We must leave the Nene for the present to speak of a skating tract which is generally a very fine one and one of the first to bear. We have incidentally mentioned, in our journey from Earith to Wisbech, passing the end of the Forty-foot river (Vermuyden's Drain) at Welches Dam, and also passing *over* the Middle Level Drain between Nordelph and Outwell. We thus touched, at two points, a fine skating course of twenty-four miles, for, if the traveller leaves the Old Bedford at Welches Dam, he may proceed for three miles along the Forty-foot, and then turn at a little less than a right angle to the east along the Sixteen-foot, and so on to the Middle Level Main Drain which is continuous with it and almost in the same straight line. Hence pursuing his unimpeded course for rather more than twenty miles,

he will come to the new Marshland Sluice, which delivers the waters derived from the Middle Level into the Ouse just above the Eau Brink Cut. This sluice was built in lieu of the syphons which were found unequal to the work. Popham's Eau (pronounced E) crosses this track, running from the March river to Nordelph, where again there is an artificial cut called Tong's Drain (or Marshland Cut) running to the Ouse through a distance of $4\frac{1}{2}$ miles.

From Upwell the skater can proceed upward by the March river to March, to Whittlesea, and so on to Standground and Peterborough by the King's Dyke or Back river. By keeping to the left from Flood's Ferry (at the junction) he can go on to Ramsey or to the Forty-foot river. If he wishes to go by the latter to Chatteris, he had better leave the Old River at Benwick and so make a short cut to Vermuyden's Drain. All these courses are best seen on the map at the head of the chapter. There are other smaller drains, but these are too numerous to mention. Perhaps, however, Bevill's Leam, which now drains the site of Whittlesea mere, and is carried through to the Twenty-foot, which after approaching within a mile of the River Nene, turns southward to join the March river below March, ought to be mentioned. From the angle thus formed there is a small ditch by which the traveller can get on to the Nene washes.

Before quitting the Ouse, or the Middle and South Level districts, it may be well to mention some journeys which

have been performed in them. A gentleman has on several occasions, skated in the day from Earith to Wisbech and back dining at the latter place—a distance of 64 miles. On another occasion he went with a party of others from Earith to Salter's Lode, walked to Denver, saw T. Watkinson win a race at Littleport, and went by Ely and the Old West River to Earith again, which was a distance of about 54 miles. He once started from Over Cote, skated to within sight of Denver's Sluice in the New River, had to retrace his strokes to within two miles of Welney, and then made his way by smaller drains to Hilgay, and having passed Ely, and proceeded a mile past the junction of the Ouse and Cam, met a party of friends, and returned with them to Ely, then dined, and returned with them to Cambridge—a distance estimated by measurements on the map of 70 miles. Four brothers—the Messrs. Tebbutt of Bluntisham—having skated to Wisbech by Salter's Lode, and returned by the Middle Level Drain and Forty-foot to Welches Dam, crossed the Washes a second time on foot, and ran on the main river back to Earith suspension bridge. Two of them with unsatisfied appetite for the delightful exercise turned and went to Mepal and back again—thus accomplishing certainly more than seventy miles notwithstanding many impediments. A young lady in her teens last winter skated over rough ice, and against the wind, from Cambridge to Denver, and turned back to Ely—a distance of about fifty miles—accomplishing it with ease.

The Nene presents to the skater almost the same features as the Ouse. Thus, its water passes from just below Peterborough to Guyhirn by an artificial cut called the New River, while to the south of it runs an older cut, also artificial, called Morton's Leam (in honour of the famous Bishop Morton, who was mainly instrumental in constructing it). Between them is a large wash-way used as a reservoir of water in time of flood, and varying from one quarter to three quarters of a mile in width, and twelve miles long. *Mutatis mutandis*, these are exactly the same conditions as are found in the Ouse, and it would be tedious to repeat the cautions, &c., which apply to both rivers. Below Guyhirn, the open tidal river does not often bear, though, now and then we have known skating down to Wisbech, and even below it. Over the bank, on the north side of the main river is a Counter-wash drain, and from this the skater can gain access to the interesting skating district of the North Level, either by the Thorney river which communicates with it at the "Dog in a doublet," five miles below Peterborough, or by the New Wryde, which runs from "The Cross Guns" to Clows Cross. Thorney dyke, which runs in to the New Wryde at Knarr Cross, affords good skating, and is easily frozen. The New Wryde is an excellent skating tract. Two-and-a-half miles from "The Cross Guns," it takes a sharp turn to the east, while the Old Wryde comes in from the west; and again at Murrow, at an equal distance, it turns to the north. At Clow's (or Clough's) Cross, its

waters pass through lifting sluice gates, or slackers, to the North Level Main Drain, and so by Tydd-gote, about seven miles lower down, to the Nene outfall cut. The North Level Main Drain, corresponding to the Middle Level Main Drain, is, like it, a fine broad skating highway. From Clow's Cross the New South Eau runs upward to within a mile of Crowland and the Washes of the Welland. It is somewhat difficult to pass from the North Level to the Welland Washes and to the district beyond. The direct route to Peakirk by the Old Wryde and the Peakirk Drain is seldom skatable. There is a communication from the middle of the New South Eau by the Portsand Drain and St. James' Drain to Brotherhouse, which is close to the Welland Washes, and lies between Crowland and Cowbit, but the skating on these narrow drains is precarious. A more circuitous but a safer route is to go by the North Level Main Drain to Tydd, and then to walk to the South Holland Drain, and skate westwards to the Welland. Mr. S. Egar, of Wryde House, Thorney, is the practical authority from whom we have derived most of our information of this part of the fen. He belongs to a skating family of high renown, and has himself performed many remarkable journeys both on this Level and the Middle Level.

The Washes of the Welland, called the Cowbit (pronounced Cubbit) washes are easily flooded, and constitute when so flooded and frozen, one of the most splendid skating arenas in the fen. They stretch from Peakirk

nearly to Spalding, and are twelve miles long, and in some places about a mile wide. They differ from the washes of the Ouse and Nene, in that there is no bank between them and the main river, and so they receive the overflow of water without any opening of gates. There is also a drain running along the south-eastern margin of these washes by which the traveller can pass when the washes are not flooded, and the main river is unfrozen on account of its current. The Welland seldom freezes so as to furnish skating below Spalding. From the Welland the traveller may pass northward by the Cross Drain which approaches to within 300 yards of that river at a point about two miles below Peakirk. From this drain he can pass to the South Drove Drain, the North Drove Drain and the Counter Drain, all of which lie between the Welland and the Glen, and run away from Cross Drain to the east and unite at Pode Hole Engine to form Vernatt's Drain (or Deeping Fen Main Drain).

The River Glen is a fine broad stream, but it requires a hard frost to close it. When it is frozen the traveller can pass from the Counter Drain to Bourn Eau, and by a small drain to Guthram's Engine and so on to the South Forty-foot which runs round to Boston, a distance of more than twenty miles.

As the Witham River is locked by the sluice just above Boston, the run from that town to the City of Lincoln, a distance of thirty-two miles, is generally good. Mr. D. C. Burlingham, of Lynn, to whom and to whose son

Mr. S. S. Burlingham, we are indebted for much information about these districts, gave so interesting an account of three day's skating in the fens of Lincolnshire last season that we have, by permission, incorporated it in full :—

SKATING EXTRAORDINARY.

From various remarks I have heard I think some of your readers will be interested in a few more particulars of the "skate extraordinary," as your reporter in the last issue flatteringly terms our recent excursion into Lincolnshire. I will, therefore, venture on your kindness as upon the ice, assured it will not let me in.

My youngest son, Alfred, being about to return to school in Yorkshire, I thought it a favourable opportunity of giving pleasure to the lad and to my son, Samuel, who accompanied us, and also of gratifying a long-cherished wish I had entertained of seeing more of the Lincolnshire system of drainage by skating to its farthest extremity.

We started by the 10.0 train for Sutton Bridge, and walking from thence about one mile along the Nene, came to South Holland; upon which we found the ice pretty fair, but not equal to the North Level, upon which we had skated the previous Saturday nearly to Crowland. The sun shone brightly, and we went merrily along, stopping to talk to most of the natives we met, to inquire the name of every bridge, and to look up every drain of any magnitude as we passed. One of these bridges was the "Coy" bridge, (short for "decoy,") hard by a plantation that had been an old decoy; and one of the larger drains was the Raven's Clough, that led into Whaplode, which gives name to the parish of which our old friend John Fairfax Francklin is the vicar. Had there been a way out further down as well as this way in, I would have made a detour for the pleasure of a chat with him; but skating days are short, and you must push on, as you know not what may befall ere set of sun. Along the drains are no telegraphs and often no reports. A man must make his own tracks or stop at home. Further west this

great drain kept narrowing, and for the last three miles was only the width of a dyke, and so much snowed over that we were glad to reach its farthest extremity, and walked across one field to climb the bank of the far-famed Cowbit Wash. Here we met a good-natured looking farmer, named Dalton, whose field we had crossed, and whom, saluting us pleasantly, we ventured to ask if his good wife would supply us with a drink of warm milk, and he told us to turn in and see. We were well entertained in this comfortable homestead, which was pleasant to look upon, the walls covered without with trimly kept ivy, and within by a thick coat of salmon-coloured paint that would defy the moisture of the Washes. All else was bright and clean, and I was glad to think this half dairy farm had not so keenly felt the frost of these bad times. Mr. Dalton had seen many a winter, and told me of the Ruffs and Reeves that used to frequent this Wash, and other birds now all but extinct as residents. In quantity he had seen as many wild-fowl as could swim on an acre of water. Opposite the house was a gunboat turned upside down, it being no use now that all the birds are frozen out, and in fact gone south. In some floods the water comes to the top of the bank, being then about 10ft. on the Wash, which had now about 2ft. of water. Bidding good bye to our friend, we steered a straight course in a slanting direction to a point but dimly visible, about two miles away. Crossing the Wash on the ice was most delightful, especially at this point, where it is widest and the eastern bank has a gentle curve. Looking over the top are seen for over a mile the houses and Church of Cowbit. We came to the Welland, and, passing along it for two miles, ascended the western bank, and, scrambling across one field, reached the South Drove drain, up which we shot to its northern end, Podge hole, where drains meet from four directions. Looking along the Counter Wash westward we found water over the sides and nearly meeting in the middle, and as it was now past four, it seemed prudent to steer eastward along Vernatt's drain, where the water had not yet run over, for Spalding, and we reached that station in time for the 5.0 train for Boston. Next day, "hurricane Tuesday," we were on the Witham by 10 a.m. First thing we saw was a man with an axe hacking the ice away round a pretty looking yacht. We were struck with the noble width of the frozen-up river, and with the number of yachts, boats and vessels.

It was soon evident we were to be, like boats, driven with the wind. I tried my plaid for a sail, but for a short time only, and quickly clewed it in, as the speed felt frightful. With bare poles alone we sailed 12 to 15 miles an hour without striking a stroke. It was well enough where the ice was smooth, but not so pleasant where the ice was rough, with the certainty you must either rattle over it or come to grief, which I did twice, till I was sore, and almost shuddered at the rougher passages. I was but ill prepared, having a long heeled skate, of which I did not before know the disadvantage. A short sharp heel gives the only chance of effective brake power. The river had frozen after the first snow, and the latter snows were blown clean away, so that there were some splendid runs, but too often interrupted by cracks entirely across the river, through which the water flowed, which gave a few yards of rough ice; in other parts it was rough from the floe ice not yet set by the frost; and there were numerous ferries, which had been kept open as long as possible; but were all now closed except a few of the large horse-boat ferries. Bridges are many miles apart, and these horse-boat ferries perform their function. The finest bridge is Tattershall, which spans the river with a wide lofty single arch, and is the approach to the Castle. Before reaching this bridge we encountered the only open water of the day. Fortunately at this spot was a fisherman's house boat frozen in on the side of the river, and seeing smoke, we turned in and chatted with the old fisherman. He cautioned us strongly to hug the shore very close till we had passed Sleaford Cut end, after which the ice would be strong again. Sleaford canal, on the south side had nine locks, and Horncastle canal, on the north side, had eight locks, each lock 10ft. Further down two farmers joined us for about two miles, and these, with about half a dozen others, (some of whom had come from Lincoln by the train to the first station, to skate back with the wind), were the only parties we saw. Trains seemed almost more numerous than men,—two or three passenger trains each way, and several luggage. The rail is always near and often along the river bank, and my sons had rare fun in racing a goods train and shooting past it. At Bardney the rail passes between the natural river on one side and the navigation river which raises up one lock on the other, and so close to the navigation side that the quarter-mile rail posts gave an admirable opportunity for testing speed. The

wind, now at its greatest height, and blowing nearly in the direction of the river, gave a rare chance for shewing what might be done by a professional skater. My son, Samuel, skated one mile without a flying start in about 2m. 42s., and on another trial half a mile in 1m. 17s.

We ran into Lincoln with a rush, but left it next day on the old Foss-dyke at a snail's pace. Ice broken up by the ice-boat and frozen again, very rough and sanded over, and, where not sanded, snowed over from an inch to several inches deep. Wind blowing often against us, and snow falling. Still we toiled on, and reached Torksey in a bitter snow-squall. The Trent was open water, so we gave up the hope of reaching Gainsborough, and made for the Stow Park station, four miles away, along the snowed-up roads of the country. Alfred went on to York and Samuel and I to Boston. The next day we took to the Black Dike, so called at Boston end, but further down the South Forty-foot. We found it *Black dike* all the way, covered with sand and peat soil ; and did not reach the Guthram engine at the further end, 21 miles off, until 5.30. The only incident was meeting a pleasant fellow, an elegant skater, two miles from Donington bridge, who accompanied us there. He, thinking the ice might be better the other side, passed under the bridge, and, scrambling over some lighters quicker than we could, was soon on the ice and as soon in up to his armpits, declaring we ought to give him a vote of thanks ; which we did, wishing him well home after his four miles of walk there. The stupid fellows on the bridge might just as well have saved our friend his ducking by telling us it was a part of the drain that never froze, owing to a hill stream entering the drain about one mile south.

Further on the ice was sound, but bad as ever, so that for several miles we found it quickest to walk, and were glad to reach the end, cross the road, get on the bank of the river Glen, (here a noble river), cross it by the railway bridge and reach the Counter Wash station ; thence by rail, four miles to Spalding, and home that night.

The Black Dike was an unfortunate affair. Had the ice been good my son Samuel would have gone to the race ran at Cowbit, and I to visit the drowned part of the Bourn Fen. This flood occurred last July, through the south bank of the Glen breaking. Nine miles were at the time flooded, and I was told 2,000 acres are still under water.

We found that, with the exception of about half-a-mile between Podge hole of the outward journey, and Guthram's engine of the return journey, and the trivial walks mentioned in the course of this letter, there was skating ice from Nene to Trent.

Quod erat demonstrandum,

D. C. BURLINGHAM.

We are informed that the North Forty-foot and the water courses which drain East and West fens, and deliver their waters through Maud Foster Drain, and also that which drains Wildmoor fen, and discharges itself by Hobhole sluice, are good skating tracts.

Our remarks have been confined to the skating highways of the Fens, but the canals of England afford facilities for skating to those who live in proximity to them. Some friends of the writer, in the winter of 1860-1, travelled along the Nottingham and Grantham canal, thirty-two miles in length. There are other canals at Nottingham, the present home of George Smart, the champion, who will thus not be entirely without means of keeping himself in practice.

A few general remarks may be useful here. The foremost and fundamental enquiry, and that which underlies all the rest, is what thickness of ice is requisite to sustain the reader? Something depends on the gravity or levity with which the enquiry is entered upon. For a person whose weight lies between nine and fourteen stones, the *minimum* thickness of ice over any considerable depth of water should be two inches, and at that thickness, should be good. This statement needs to be taken strictly within its limitations. One inch-and-a-

half of ice on a meadow over a few inches of water will afford much enjoyment to boys, or even men, especially if they are active enough, when they cut through, to snatch their foot out of the hole without falling. Further, we do not at all mean that fourteen stones is a maximum skating weight. There is no athletic exercise, at which a fat man or a lady with a tendency to *embonpoint* appears at such advantage as in skating. It is on skates alone, that obesity becomes elegance and ponderosity power, but, in such cases, the maxim, "know thyself" is useful. Two inches of ice, however, are insufficient when several persons skate in file, and more especially where the ice has been so much skated on as to be split into triangular and polygonal pieces. Under such circumstances, three or four inches are requisite.

The next consideration is, when and where are we likely to find the requisite two inches, or more, of ice. In our boyish days, when we had a very rough and ready method of arriving at facts without the intervention of science, we used to say, that three nights' frost were enough to give good skating. During those three frosts, however, the thermometer ought at least to reach 10 degrees, Fahrenheit, below freezing point each night, and it should freeze throughout the night. Two nights' frost, in which the thermometer reaches 15 degrees, Fahrenheit, below freezing point, will do quite as well, and one night's frost, when the temperature drops down to within a few degrees of zero, Fahrenheit, will cause all

open, stagnant, and not very deep waters to bear. From these data, derived from experience, no doubt some equation might be constructed of time multiplied by the intensity of the frost, on the one side, and the thickness of the ice produced, on the other; but, previous conditions and a multitude of other things would modify the calculation to such an extent, that any more definite statement would be misleading. A very slight stream makes a considerable difference as to the readiness with which water will freeze, and nearness to the springs which feed the river, is another drawback to the empire of the frost. Where there is a palpable current, as in the main rivers traversing the fens, a succession of slight frosts is of no service, and no progress is made, unless a frost of about 16 degrees, Fahrenheit, sets the surface. Those acquainted with the laws of radiation of heat find practical demonstration of their theories in the fact that an overhanging bank, or tree, prevents the water beneath it from freezing so firmly as the rest of the river. Hence, these should be avoided as unlucky, on the same principle as "gentlemen of the pavement" avoid going under ladders. Bridges, however, cannot be avoided, nor can they be circumvented, unless the traveller climbs up the bank, and crosses the road, and passes down on the opposite side. Bridges can, however, be *shot*, when there is but very thin ice beneath them. In this process the skater takes a good start, and gets up a high speed to dash through with, and at the same time lowers his body to lighten his weight so as to make a half jump of it.

He can thus pass over twenty or thirty feet of very thin ice. The writer has often done this to his complete satisfaction, but it is fair to state, that on one occasion, he failed by finding the ice on the far side for a considerable distance so weak, that he broke through, and fell forward on to the edge of the thin ice, and split his chin open. Another method of getting over places where the ice is tender, is by crawling, or by lying down on the ice, and being drawn across by a companion with a rope. The weight is thus distributed over a large surface of ice. The tail-piece preceding this chapter, shows how a heavy man may be towed under a bridge by the aid of a slimmer comrade who has passed before him. Reeds, rushes, and all water weeds which protrude above the surface, should be avoided, and also the steam pumping engines which abound in the fens, for obvious reasons. A ducking in ice-cold water is always unpleasant, but, the danger of drowning is not very great, if the water be stagnant into which the skater plunges, and this is very generally the case in the Fen country.

The idea of breaking through the ice, and then being propelled by the impetus of the motion under its surface is frightful to the imagination, but, it is scarcely ever realised. For, if the ice breaks, it breaks into sheets, which tilt up before the skater, and so effectually prevent such a catastrophe. When once in the water, the skater seizes by instinct the edge of the ice, and experiences considerable difficulty in finding sufficient hold of the ice,

or, enough resistance from the water, to draw or push himself on to the surface. If, however, before making the final effort, he gets his legs well back, gradually lifts himself, and places his chest flat on the ice, and then stretches out his arms sideways, while he kicks out as if swimming, he will generally succeed in wriggling or crawling to a place of security. It is true he may often have to repeat the experiment as the ice not unfrequently gives way again. But he will finally succeed. If the ice be very rotten, he would do well to make his efforts towards the shore, as he may have to break all his way thither. In running water, the risk of drowning is far greater, for, the unhappy victim will naturally drift towards the down-stream side of the hole, and his legs will be carried under the ice. The effort to get them back again, and the struggle to get on the ice, is very exhausting, and if it fails, and he takes rest, his body is again drawn under, and after repeated efforts the numbing effects of the cold tell, all muscular effort fails, and death is inevitable, unless help comes from others. There lives in the native village of the writer, a man who was discovered in this condition, holding to the down-stream edge of the ice with his fast stiffening fingers and chin, while his body was stretched out beneath the ice, who was rescued from certain death by a party of skaters returning from Huntingdon to Houghton.

The greatest impediment to skating, next to the insufficiency of the frost, is a heavy fall of snow. An inch

of snow may be skated through without much inconvenience, though it adds to the labour of a day's march. Two inches of snow, especially if the top stratum has been thawed by the sun and refrozen, will fatigue in a few hours all those capable of fatigue, and any greater thickness constitutes an absolute bar to skating. It is very desirable however, that those who love skating should not be readily discouraged, or they will miss many a fine day's sport. It is very seldom in our climate, that snow absolutely bars locomotion on the ice. If there is any wind while the snow is falling, it is almost always carried off the ice, or one side of the river or drain, has but little on it. It is well after snow and wind, to choose some water-course which runs parallel with the wind, (as the chance of it being cleared is greater,) rather than one which crosses its direction. Very often, through some slight alteration of the level of the water, the ice rises or sinks, and the water from below, either runs over from the sides or oozes through the crack in the middle, and a very slight frost consolidates this thin layer of water, and so gives to the skater the surface of fresh ice, with the security of the old. Hence, though the snow is always a hindrance, and time must be allowed for overcoming or circumventing it, it hardly ever occurs, that an enthusiastic skater, who is willing to walk now and then, and is not afraid of a little labour, is prevented by it from making his way along an ice highway. Very often, the difficulties encountered, and the skill necessary for overcoming

them, are exciting and pleasurable. Another hindrance to fen skating is a most vexatious one. It is caused by the light soil being blown on to the ice. The traveller sees before him a fine stretch of black ice, and promises himself a glorious run, when suddenly, almost without warning, he finds his foot hanging, as though he were forcing his way over a blanket. The particles of fine earth acted on by the sun sink into the ice, and then are frozen there, and the consequence is, the ice loses all its skating qualities, and, after fighting his way over it for a few hundred yards, the skater will prefer to walk. This soil also soon blunts the skates. A curious phenomenon sometimes presents itself when the water has flowed over the ice from the sides, and is stained with the fen earth. This film of water, at a certain stage of congelation, presents a surface which offers great resistance to the steel of the skate, which appears to stick to it; but, whether this is due to imperfect consolidation, or to the substance suspended, it is difficult to conjecture. The tourist should beware of concluding because he has found skating difficult in one day, from any of the above-named causes, that he will find it the same in a following day. Very slight differences of sun or frost, will convert a gritty or greasy surface, into a perfectly delightful one. Hopefulness is essential to the ice tourist, and some of the finest days' enjoyment on skates we have ever known have been after being jeered at, and thought absurd, for supposing we could find any available ice.

Companions, if they be of about equal speed and endurance, are highly desirable. So palpable is the resistance of the atmosphere, that by skating in file, and changing leaders, the labour is much lightened. The danger from immersion is much diminished, and consultation is often desirable. If the party contain one cautious, and one venturesome member, and a cord is entrusted to the keeping of the former, and the latter has a stout hockey-stick, the combination is perfect.

The writer, in his boyhood and early youth, was favoured by having in his expeditions on the ice two companions, both older than himself, and both excellent skaters, who severally possessed the qualities recommended above. Both were excellent judges of ice and its soundness, but, if they erred, the one always did so on the side of adventure, and the other on the side of caution. With a perversity which was, however, not strange to account for, our cautious friend always carried the stout hockey-stick, and, if the cord was not left at home, it fell to the lot of our venturesome friend. This latter gentleman was the most daring experimenter on fresh ice, we have ever met with, yet singularly fortunate withal. With a particularly easy and light, but effective stroke, and of no great weight, he would slip over an isthmus of ice, between an open water on the one hand, and a bed of rushes on the other, where others would certainly break through. Many a time, after having crossed a suspicious-looking place with him, we have heard the huge bandy of our cautious friend ring-

ing on the ice, to try its safety. With these guides, philosophers, and friends, we had many a pleasant day, returning sometimes by sunlight, and sometimes by moonlight, sometimes wet, and sometimes dry, but always with the full glow of enjoyment upon us.

The Fen and the Fen folk are very hospitable, and although there is perhaps not much refinement, there is plenty of good solid English cheer there. One of the peculiarities of the Fen folk is, that having so much water round about them, and having experienced the difficulty of defending themselves against it, they are very chary of admitting it into their systems, at least, in an unadulterated state. If the tourist asks at any of the little inns on the banks for water, milk, lemonade, tea, or coffee, the hostess will probably gaze upon him with unfeigned astonishment, if not with ill-concealed contempt, and reply "we don't keep such as them." These people have a rough humour of their own too, If you meet them after skating through the mist with the rime in your whiskers, they will say, "Here's a man as started fresh, and has turned mouldy on the way." A sturdy fellow looks over the bridge you are passing under, and thus warns you of danger ahead. "Hi! Master, if you make a hole, you'll wet your clothes." This however, is courtesy itself, when compared with the rougher practical jokes of a generation past, for an old skater assured us he once at nightfall, while skating down a drain, pitched into an open hole cut for that very purpose, and when he crawled out, saw a native

on the other side of the bank, enjoying the fun. Addressing a loud and angry remonstrance to this joker, he was met with, "Can't you be quiet, you fool? Don't you see there's another man coming?"

All owners of boats and barges have an inconvenient habit of giving to their gunwales a fresh coating of tar directly they become fixed in the ice. This is the Fen way of warning off, and is based on the opinion, that to sit on a craft thus frozen in, injures its sides. As boats and lighters so situated, are the most convenient resting places for the tired skater, if unaware of the custom, he is very likely, by sitting down, to become unfit for any decent sedentary employment for the rest of the day. Notwithstanding these little amenities, we have found as hospitable homes, and as warm hearts in the Fen, as in any part of the world.

We have, in these last paragraphs, dwelt on the discomforts, difficulties, and dangers of skating. The delights, however, far outweigh them, and these are beyond our powers of description. It is a matter of surprise and regret, that our poets who delight in the expression of the most joyous emotions, have so seldom dilated on this theme.

Thomson, in his "Winter" Season, has a spirited description of a skating scene, but the scene is not English, but Dutch,

"Now in the Netherland, and where the Rhine
Branched out in many a long canal, extends
From every province swarming, void of care

Batavia rushes forth ; and as they sweep
On sounding skates, a thousand different ways
In circling poise, swift as the winds along,
The then gay land is maddened all to joy."

It is disappointing, that our Poet Laureate, whose vivid and truthful descriptions of moorland scenery, such as are found in "The Lady of Shalott," entitles him to be considered as, *par excellence*, the poet of the fens, should have so neglected the pastime of skating; but is even more vexatious, that the one passage we are able to quote, is the following ;

" Till I, tired out
With cutting eights that day upon the pond,
Where, three times slipping from the outer edge
I bump'd the ice into three several stars."

Surely, he, who having the whole fen open to him, is content with "cutting eights" upon a "pond" deserves to bump the ice into as many stars as are found in the midnight sky. Byron sings of "some strong swimmer in his agony," but we still lack a poet to describe some swift skater in his ecstasy.



APPENDIX A.

RULES OF THE BLUNTISHAM AND EARLTH SKATING HOCKEY CLUB.

- I. The maximum distance between the goals shall be 220 yards, and the goals shall be upright poles with tape or lath across at the height of 7 feet. The maximum width of the goals to be 22 feet, but if sufficient ice is not available to get a length of 220 yards with a proportionate width, then the goals shall be in the proportion of 1 foot wide to every 10 yards apart.
- II. The hockey used shall not be more than 6 feet long, or more than 3 inches wide or thick in any part.
- III. The ball to be used shall be a solid india rubber ball with a diameter of not more than $2\frac{1}{2}$ in. and not less than $2\frac{1}{4}$ in.
- IV. In commencing, the Umpire or one of the Captains shall throw the ball straight up half half-way between the goals. At half time and whenever a goal is obtained the players shall change ends and recommence in the same way.
- V. When a bye is hit, the goal-keeper shall hit the ball off within 6 yards of the goal posts, when no opponent shall be within a distance of 12 yards in front of the goal lines, this being the only restriction as to where the players shall stand, except that no player shall persistently stand within a distance of 12 yards of an opponent's goal, thereby impeding the movements of the goal-keeper.
- IV. If the ball is hit off the ice or beyond that line which is considered the boundary, it may be picked up by the first comer who must take it to the place from where it left the boundary and he shall have a free hit from that point.

Appendix A continued.

- VII. If the ball rises into the air it may be stopped by the body or hand of the player, but if caught it must be dropped instantly at the feet of the person who caught it, except in the case of the goal-keeper, who shall have the liberty of throwing the ball away from him.
- VIII. The hockey may be used to catch, lift or bear down the hockey of a player, but no player under any circumstances whatever to be allowed to raise his hockey higher than his shoulder, and any charging, holding with the hands or hockey, any tripping or rough play of any sort to be peremptorily put down by the Umpire or Captains.
- IX. The full number on each side to be 15, but in case of short goals, etc., Captains to arrange the number as convenient.
- X. To obtain a goal the ball must pass between the goal-posts and under the tape.
- XI. If any player throws or drops his hockey, an opponent may pick it up and throw it away.
- XII. No player to be allowed the use of more than one hockey at the same time.
- XIII. All players disobeying these rules after being once warned or called to order by the Umpire or Captains may be prevented from taking further part in the game.

FRED. JEWSON, }
ARNOLD TEBBUTT, } HON SECS.



APPENDIX B.

The following is a list of the principal Fen Rivers and Drains. The numbers and letters placed next to the names refer to their position on the map at pages 150, 151. In some cases a rough estimate is given of the width in feet. The remarks are made to give an idea of the nature of the skating. The distances along the rivers, &c., will be found by referring to the routes, &c., in appendix C. Those already well acquainted with the Fens, will doubtless consider that much remains to be explained, and perhaps to be corrected, but the information given may somewhat assist those who are strangers to the district.

<i>In Route, II.</i>	<i>Width in feet.</i>
Cam above Cambridge, unfavourable	40
„ Cambridge to Bottisham, 7, N. Good with sharp frosts.	45
„ Bottisham to Denver Sluice, 7, 8, N to I. Good.	
„ from 50 increasing below Ely to 	100 and 120
Bottisham Lode, 7, N. 	20
Swaffham Lode, 7, N. 	20
Reach Lode, 7, M. 	20
Old West River, 6, 7, M. 	30
Rampton Lode, 6, 7, M, (not shewn on map)	
Willingham New Cut, 6, M. 	16
Soham Lode, 7, 8, L, M.	
River Lark or Mildenhall River, 8, 9, L, M. Rarely frozen and breaks up quickly.	

<i>Appendix B continued.</i>	<i>Width in feet.</i>
Brandon River or Little Ouse, 8, 9, 10, K. Rarely frozen. ...	55
Lakenheath Lode, 9, K, L.	20
Sams Cut, 8, 9, J, K. Requires sharp frosts.	20
Stoke River or Wissey, 8, 9, J. Does not freeze readily.	
Methwold Lode, 10, J.	
River Nar or Setchey River, 9, 10, H. Never bears.	

In Route, I.

Black Bank Drain, 7, 8, K.	12
Engine Drain, (Littleport and Downham District,) 7, 8, K. Good.	40
Great Ouse, above Bluntisham Lock, 3, 4, 5, M, N, navigable. Bears	
in places with sharp frost, all with very severe frosts.	80
,, below Bluntisham Locks, Hundred-foot River, 6 to 8, L,	
K, J. Tidal. Sometimes bears to Welney Suspension	
Bridge ; Rarely to Denver Sluice.	80
,, below Denver Sluice, never bears.	
Old Bedford, Earith to Welches Dam, 6, L, K. 1 mile at S. unsafe,	
rest good.	40
,, Welches Dam to Salters Lode Sluice, 7, J, K. Very good.	40
Crane Brook Drain, 5, L, (not shewn on map.)	12
Wash Drain (from Welches Dam to Welmere Lake Sluice,) 7, 8,	
J, K.	20
Counter Wash Drain, 6, K, L. Very good.	30
Well Creek, 7, 8, I. ... Good.	30 to 40
Tongs Drain (not shewn on map), not navigable. Good.	
Wisbech Canal, 6, 7, H, I. Good.	40

In Route, III.

Chatteris Lode, 6, K. Fenton Lode, 5, L. Good. to Chatteris ...	20
then decreases to 6.	
Ramsey High Lode, 4, K. Good ; at some places the sides do not	
bear	30
Holme Lode and Monk Lode, 4, K. Good.	20

<i>Appendix B continued.</i>	<i>Width in feet.</i>
Forty-foot River or Vermuydens, 4, 5, 6, K. embanked. Very good;	
Horse-way to Sixteen-foot River not so good ...	40
Sixteen Foot River, 6, 7, J. K. embanked. Very good. ...	50
Middle Level Drain, 7.8. H, I. Very good. ...	50
Drain from Forty-foot River to near Benwick, 5, K.	

In Route, IV.

Benwick River, 5, J, K. ...	50
Whittlesea and March or Old River Nene, 4 to 7, I, J. Good. ...	50
King's Dyke, part of Back River, 3, 4, J. Good. ...	45
Whittlesea Dyke, part of Back River, 4, J. ...	35
March River, part of Back River, Old River Nene, 5, 6, 7, I, J. ...	50
Bevills Leam and Twenty-foot River, 4, 5, J. Good. ...	50
North East Cut, 4, J.	
North West Cut, 3, J.	
Conquest Lode, 3, J.	
Yaxley Lode, 3, J.	
Pophams Eau, West part, 7, I. Good. ...	50
" " East part, 7, I. Not so good but can be avoided by using Middle Level Main Drain and Well Creek.	20

The whole of the above group of Middle Level Rivers afford the best skating, in the Fens especially if frozen when the water is low.

In Routes I. (and IV.)

Upwell River, Marmound Priory Sluice to Outwell Sluice, 7, I.	20
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In Route V.

Delph Dyke, 4, I, J, (not shewn in map)	
Morton's Leam, Wash Way or Little River, 4, 5, I.	
North Bank Counter (Nene) Drain, 4, 5, I. bears sometimes from Cross Guns to 3 miles W.	
Nene, 4, 56, I. Usually good skating, Peterborough to Cross Guns; rarely to Wisbeach.	

Appendix B continued.

Width in feet.

Thorney River, 4, I, the first to bear, quiet water. ...	25
Thorney Dyke, 4, 5, I, the first to bear, quiet water. ...	12 to 15
New Cut, 5, H, (not shewn on map) often fair skating but uncertain. ...	at N, 20
Old Wryde, 4, 5, I, embanked, very uncertain ...	at W. 12
New Wryde, 5, I, embanked. good. ...	24
New South Eau, 4, 5, H. fairly good ...	15 to 25
North Level Drain, 6, G, H, banks very high, 50 decreasing to W.	
St. James's Drain, 4, H.	

See detached Rivers, Appendix C.

South Holland Drain, 4, 5, 6, G. ...	15 increasing to 30.
South Drove Drain, 3, 4, G, H, ...	18
Counter Wash Drain, 2, 3, G, ...	18, increasing to 30
North Drove Drain, 3, G, ...	18
Vernatt's Drain, 4, F. ...	20 to 30

Not in Appendix C.

Gold Dyke, 5, I. Embanked. Rarely good ...	11
Portsand Drain or Dowsdale Arm 4, H.	
Cowbit Wash Drain, 3, 4, G, H. ...	20
River Welland, 2, 3, 4, G, H. Often bears Deeping to Spalding ; sometimes to the Glen.	
Cross Drain, 3, H. ...	20

In Runts VII.

Bourne Eau, 2, G. Sometimes freezes.	
River Glen, 2, 3, 4, F, G. Sometimes freezes. ...	30 to 60
South Forty Foot Drain, 3, 4, 5, D, E, F, ...	at S. 15, at N. 50
Hammond's Beck, 3, 4, 5, D, E, (not shewn on map) skatable.	
Risegate Eau, 3, 4, 5, E, (not shewn on map)	
Clay Dyke, 3, 4, C, D.	
North Forty Foot, 4, C, D.	

Appendix B continued.

<i>In Route V.</i>				<i>Width in feet.</i>
Sleaford Canal, 2, 3, C.	...	...	...	30 to 40
Billinghay Skirt, 3, B, C.	...	...	...	20 to 30
Walcott Delph, 3, B.				
Timberland Delph, 3, B	...	...	...	20
Metheringham Delph, 2, 3, A, B.	...	...	...	20
River Witham, 1 to 5. A to D. Bears from Boston to Lincoln.	...	...	...	60
Horncastle Canal, 4, A, B.				
Castle Drain or Long Drain, 4, 5, C, (not shewn on map)				
Newham Drain, 4, 5, B, C.				
Howbridge and West Fen Drain, 4, 5, C.	...	...	S. part	40
Frith Bank Drain, 5, C.	...	...	...	25

See detached Rivers, Appendix C.

Maud Foster, 5, D.

West Fen Drain, 5, C.

Stonebridge Drain, 5, C. 40

Cow Bridge Drain, 5, D. 40

East Fen Main Drain or Hubhole Drain, 5, 6, B, C, D. Good ... 40

Not in Appendix C.

Medlam Drain, 5, B, C.

Mill Drain, good 5, C, (not shewn on map) Good. 20

West Fen Catchwater, 4, 5, B, C. Good, often bears. ... At N. 15

East Fen Catchwater, 5, 6, B, C. Good, often bears. ... 15 to 20

Bellwater Drain, 6, 7, B. Good. 15

(Good Dyke. 6, 7, B, (not shewn on map) 12

Steeping River, 6, 7, A, B. Bears from Firsby Clough to two miles

from sea. 25



APPENDIX C.

The Map of the Fen rivers, at pages 150-1, being too small to allow of short distances being measured, we give the following routes in detail. The Branch routes are enclosed in brackets, thus [], and the sub-branches thus [[]], and have a black mark down the side ; after which we revert to the original routes. The measurements are given in miles ; they must not be implicitly relied upon, being measured only upon the Ordnance Survey Map of 1 in. to the mile. As short distances are given as $\frac{1}{4}$, $\frac{1}{2}$, or $\frac{3}{4}$ of a mile, the measurement between places near together are not accurately shewn. The numbers not in brackets show the distance apart of the places between which they stand. The numbers in brackets, thus (), show the distance of the places *after* which they stand, from the starting place of the route, which is given in capitals. Thus :—Welney village and bridge (27), 6 Old Bedford Sluice near Salter's Lode Sluice, (33) indicates that Welney Village and the bridge are 27 miles from HUNTINGDON which is at the head of the route, and that Old Bedford Sluice and Salter's Lode Sluice are close together, and are 6 miles further on, and therefore 33 miles from Huntingdon. Only the Railway Bridges and the chief road bridges, and the more important Fen drains are given. The measurements along any river will be found where the name is given, in conspicuous type, thus—**POPHAMS EAU.**

ROUTE, I.

HUNTINGDON to WISBECH,

By Great Ouse, Old Bedford, Counter Wash
Drain, Old Bedford, Well Creek, and
Wisbech Canal.

HUNTINGDON Bridge, **GREAT OUSE**, 1, Hartford Ferry (1)
(A meadow on the S., sometimes flooded. Several meadows
on the N. from here to Witton, sometimes flooded.)

Appendix C continued.

- 1 $\frac{3}{4}$ Houghton Locks ($2\frac{3}{4}$), $\frac{1}{4}$ Rail. Bridge (3), 1 Hemingford Locks (4), $\frac{1}{4}$ Rail. Bridge (4 $\frac{1}{2}$)
 (Here to St. Ives; a meadow on the S., sometimes temporarily flooded)
- 1 St. Ives' Bridge, then Rail. Bridge ($5\frac{1}{4}$), $\frac{1}{4}$ Locks ($5\frac{3}{4}$),
 1 $\frac{1}{4}$ Rail. Bridge (7), 1 Holywell Ferry (8), 1 $\frac{1}{4}$ Overcote Ferry ($9\frac{1}{4}$), 1 Brownshill Staunch ($10\frac{1}{2}$). 1 Rail. Bridge ... (11 $\frac{1}{4}$)
 (Bury Fen on N.W. is generally flooded.)
- 1 Earith, Old Bedford, Nine Holes, (really seven holes) sluice (12 $\frac{1}{4}$)

[Continuing along Great Ouse $\frac{1}{4}$, Old West River, Hermitage, Earith Bridge Station, Suspension Bridge. **HUNDREDFOOT** river begins (12 $\frac{3}{4}$), 3 $\frac{3}{4}$ Sutton Bridge (16 $\frac{1}{2}$), 1 $\frac{1}{4}$ Mepal Bridge (17 $\frac{3}{4}$); ($\frac{1}{4}$ walk to the W. is Counter Wash Drain), 6 Rail. Bridge (23 $\frac{3}{4}$); (2 walk W. to Manea Station); $\frac{1}{2}$ Engine on S. E. bank, Engine Drain (24 $\frac{1}{4}$)

[[over bank **ENGINE DRAIN**, or Littleport District Drain, 3 Black Bank Drain (27 $\frac{1}{4}$) N. along **BLACK BANK DRAIN** 1 $\frac{1}{2}$ Littleport (28 $\frac{1}{2}$).]]

2 $\frac{3}{4}$ Welney Suspension Bridge (27); ($\frac{3}{4}$ walk W. along road to Welney Village and Old Bedford River) 6, a mile or two of which are sometimes skatable, Denver Sluice and Salter's Lode (33).]

$\frac{1}{4}$ Along upper part of **OLD BEDFORD** (this piece is rarely safe); **COUNTER WASH DRAIN** begins over the W. bank; Sluice at end of Cranebrook Drain (13 $\frac{1}{4}$).

[along **CRANEBROOK DRAIN** (2 $\frac{1}{4}$) Somersham road (15 $\frac{1}{2}$) turn to left 1 Somersham Station and Village (16 $\frac{1}{2}$)]

2 the Gullet, a deflection in the drain (15 $\frac{1}{4}$), 1 Sutton Gault Bridge (16 $\frac{1}{4}$), 1 $\frac{1}{4}$ Mepal Bridge (17 $\frac{1}{4}$), 3 $\frac{1}{4}$ (here Counter Wash Drain runs into the lower part of **OLD BEDFORD**), Welches

Appendix C continued.

Dam, Forty-Foot River ... (21)

[Along Forty-Foot River, Locks 2½ Sluice (23½), ¾ Horse-way Bridge (24) ¼ Sixteen-Foot River, S. end (24½).]

¾ Purls Bridge (21½) 2 Rail. Bridge (23½), (1½ walk W. to Manea Station) ¾ Welney Village and Bridge (27), 6 Old Bedford Sluice near Salter's Lode Sluice (33), over bank on W. along **WELL CREEK**, 2 Nordelph; S. end of Tong's Drain, Popham's Eau E. end (35), 2, here passing over Middle Level Drain by Aqueduct (37), 1¼ Outwell Bridge, Old River, Nene (38½)

[Along Old River Nene or **UPWELL RIVER**, 1 Upwell Bridge (39½), 1½ Marmound Priory Locks (40½) 1½ Popham's Eau, W. end (42½).]

Along **WISBECH CANAL**, Lock 1 Scott's Bridge (39½). ½ Bridge (39½), 1 Emneth Bridge (40½), 1 Elm Bridge (41½), ¼ New Common Bridge (42), ¼ Rail. Bridge (42½), under two Town Bridges ¾, Wisbech Locks, River Nene ... (43½)

ROUTE, II.

CAMBRIDGE to DENVER SLUICE.

By the Cam, Sandell's Cut, and Old Ouse (these may now all be called the Cam.)

CAMBRIDGE, Town Bridge ¼ Locks (¼), ¾ Rail. Bridge (2), 1½ Bait's Bite Locks (3½), 2¾ Locks, Bottisham Lode ... (6½)

[**BOTTISHAM LODE** Locks 2½, Bottisham Mill (8½) 1¼ Quay (10).]

Appendix C continued.

1½ Swaffham Lode (7½)

| [**SWAFFHAM LCDE** Locks 3½, Swaffham Mill (10½)]

2 Upware, Burwell and Reach Lode (9½)

| [**BURWELL & REACH LODES**, Locks ¾, here
lode divides (10½), Burwell (13), Reach Wharf (12½).]

3¼ Old West River (12¾)

| [**OLD WEST RIVER**, ½ Rail. Bridge (13¼), 2½ Stret-
ham Bridge (15¾), 1½ Twentypence Ferry, Rampton Lode
(17½).

[[over S Bank **RAMPTON LODE**, Engine 2 Cotten-
ham (19½), 1½ Rampton (20¼).]]

3 Aldreth Bridge (20½), 2 New cut (22½).

[[over S. bank **WILLINGHAM NEW CUT**, Engine
2 Willingham (24½).]]

3½ Hermitage. Earith Bridge Station. Suspension Bridge
(25¾), ½ Old Bedford. Earith (26¼).]

¼ Thetford Ferry (13), ½ Soham Lode (13½)

*(Here on the E. more direct access may be had by Fen Drains to
Prickwillow, and to Mildenhall 4 miles nearer than by the rivers.)*

| [**SOHAM LODE** 4, Soham (17½), 3½ Fordham (21),
3 CHIPPENHAM PARK (24).]

2 Ely Bridge, near Station (15½), ½ Ely Rail. Bridge (16), 1¼
Sandell's Cut begins (17½)

½ Rail. Bridge and Queen Adelaide Bridge (17¾)

Appendix C continued.

1½ The Branch (19½).

[along **The BRANCH** ½ here **The LARK** or Mildenhall River (20¼), 1¼ Prickwillow Bridge (21½), 6 Isleham Ferry (27½), ¼ river divides (28¼), [[along Freckenham branch 2, Freckenham (30¼), 2 miles walk to Chippenham Park,]] 3 Mildenhall (31¼).]

1¼ Littleport (20¼), 1 Littleport Bridge (21¼)

3¼ Little Ouse, or Brandon River (25)

[**BRANDON RIVER**, 5¼ Lakenheath Lode (30¼),
[[**LAKENHEATH LODGE**, Sluice, ½ Rail. Bridge
(31¼), 2¼ Lakenheath (34).]]
7½ Brandon (38¼).]

1 Southery Ferry (26), 3 Sams Cut (29)

[**SAMS CUT**, Lock, 1 Modney Bridge (30), 6 (36),
near Feltwell]

½ Rail. Bridge. Hilgay Station (29½), ½ Stoke River or
Wissey (30)

[**THE WISSEY**, 6¼ Methwold Lode (36¼).]
[[**METHWOLD LODGE** 3 to road (39¼) near Methwold]]
2 Stoke Ferry (38¼).]

1 Denver Sluice. Great Ouse (31)

ROUTE III.

HOLM STATION to MARSHLAND SLUICE,
By New Dyke, Old River Nene, Forty-Foot
River, Sixteen-Foot River, and
Middle-Level Main Drain.

HOLM Station, G.N.R., 1½ Monk's Lode (1½)

| [**MONK'S LODGE** 2¼, G.N.R. Rail. Bridge (4¼).]

Appendix C continued.

1 Raveley Drain ($2\frac{1}{2}$), $\frac{1}{2}$ Rail. Bridge Old River Nene (3), $\frac{1}{4}$
St. Mary's Bridge and Station ($3\frac{1}{4}$), $2\frac{1}{4}$ Ramsey High Lode ... (6)

[**RAMSEY LODGE** 1, Ramsey Station (7).]

$\frac{1}{2}$ Bodsey Toll Bridge ($6\frac{1}{2}$), $\frac{1}{2}$. Here **FORTY-FOOT**
River begins, and we leave the Old River Nene here called
Benwick River (7)

[**BENWICK RIVER**, 4 Benwick (11), 1 Cop
Alder (12), $1\frac{1}{2}$ Flood's Ferry ($13\frac{1}{2}$).]

$\frac{1}{2}$ Forty-foot Bridge ($7\frac{1}{2}$), $2\frac{1}{4}$ Puttock's Bridge, drain to Benwick ($10\frac{1}{4}$)
| [$1\frac{1}{4}$ along **DRAIN** (12) to near Benwick.]
2 Carters Bridge ($12\frac{1}{4}$), (2 mile walk to Chatteris Station)
 $\frac{1}{4}$ Rail. Bridge and Chatteris Lode (13)

[**CHATTERIS LODGE**. $\frac{1}{4}$ Chatteris; here drain is
tunnelled in ($13\frac{1}{4}$), $\frac{1}{2}$ drain reappears. Railway Station
($14\frac{1}{4}$), $4\frac{1}{4}$ end of **FENTON LODGE** (19), about $1\frac{1}{2}$
walk to Warboys.]

$1\frac{1}{4}$ Sixteen Foot River, which we follow ($14\frac{1}{4}$)

[Along to end of **FORTY-FOOT** River, $\frac{1}{4}$ Horseway
Bridge (15), $\frac{1}{4}$ Sluice ($15\frac{1}{4}$), $2\frac{1}{4}$ Welchs Dam (18).]

Along **SIXTEEN-FOOT** River, $2\frac{1}{4}$ Boots Bridge ($17\frac{1}{2}$),
 $1\frac{1}{2}$ Stonea Railway Bridge and Station (19). 1 Bedlam Bridge
(20), $4\frac{1}{4}$ Three Holes Bridge then Popham's Eau ($24\frac{1}{4}$), $1\frac{1}{2}$
Bridge ($25\frac{1}{4}$), $\frac{1}{4}$ here go under Well Creek ($26\frac{1}{2}$), **MIDDLE**
LEVEL MAIN DRAIN (omitting many Bridges), 5 Rail.
Bridge (31)
 $2\frac{1}{4}$ (site of Old Syphons,) ($34\frac{1}{4}$) $\frac{1}{2}$ Eau Brink Cut ($34\frac{1}{4}$)

Appendix C continued.

ROUTE, IV.

STANDGROUND (1 mile from Peterboro') to
SALTERS LODGE SLUICE,

By King's Dyke, Whittlesea Dyke, Old River
Nene, Popham's Eau, and Well Creek.

STANDGROUND Sluice, along **KING'S DYKE**, 1
Horsey Sluice, Old River Nene (1)

[Along Old River Nene, $1\frac{1}{2}$ Farcet ($2\frac{1}{2}$), $\frac{1}{2}$ Conquest
Lode End (dammed), ($3\frac{1}{2}$) $\frac{1}{2}$ Rail. Bridge ($4\frac{1}{2}$), $\frac{1}{2}$ Yaxley
and Yaxley Lode ($4\frac{1}{2}$)

$2\frac{1}{2}$ Rail. Bridge ($3\frac{1}{2}$) $\frac{1}{2}$ Whittlesea ($4\frac{1}{2}$), $\frac{1}{2}$ Ashline Sluice ($4\frac{1}{2}$), $\frac{1}{2}$
Rail. Bridge and Station ($4\frac{1}{2}$)

here called **WHITTLESEA DYKE**, $2\frac{1}{2}$ Angle Bridge.

Twenty-Foot River (7)

[N. along **TWENTY-FOOT** River, 1 Rail. Bridge (8),
 $4\frac{1}{2}$, here is small drain ($12\frac{1}{2}$).

[[along small drain 1 to Counter Wash Drain and Washes
($13\frac{1}{2}$), $\frac{1}{2}$ walk to Guyhirn Station.]]

[1 Hobbs Lots Bridge ($13\frac{1}{2}$), $\frac{1}{2}$ Rail. Bridge and Station
($14\frac{1}{2}$) 1 Chain Bridge and then Rail. Bridge ($15\frac{1}{2}$), $1\frac{1}{2}$ end
of Twenty-Foot River. Old River Nene (17).]

[S. along **BEVILLS LEAM** $3\frac{1}{2}$, Ponds Bridge ($10\frac{1}{2}$),
 $1\frac{1}{2}$ site of old Whittlesea Mere, here River divides, ($11\frac{1}{2}$).]

[[to the S. $2\frac{1}{2}$ Nightingale Corner, Old River Nene ($14\frac{1}{2}$)]]

Along **NORTH EAST CUT**, Bridge $1\frac{1}{2}$ Conquest
Lode ($13\frac{1}{2}$),

[[**CONQUEST LODGE**, $1\frac{1}{2}$ Dam, Old River Nene ($14\frac{1}{2}$)
near Farcet.]]

Here **NORTH WEST CUT** $\frac{1}{2}$ then **YAXLEY LODGE**
($14\frac{1}{2}$), $1\frac{1}{2}$ to end of Old River Nene (16) near Yaxley.]

Appendix C continued.

3½ Floods Ferry. Old River Nene or Benwick River ... (10½)
 [2½ Benwick (12½)]
 1½ Blackfriars Bridge (11½), 3½ March (15), here called
MARCH RIVER, ¾ Rail. Bridge (15½), 1½ Twenty-Foot
 River, E. end (17½), 1½ W. end of Popham's Eau, here leave
 old River Nene (18½)

[Along Old Nene 1½, Marmound Priory Sluice (20½), 1½
 Upwell (22), 1 Outwell (23).]

Along **POPHAMS EAU**, 1½ Bridge (20½), ¼ joins Middle
 Level Main Drain (near Three Holes Bridge) (21), ¼ N along
 the River, come to the E. part of Pophams Eau (21½)
 2½ Dam at E. end of Popham's Eau, Nordelph, Well Creek (24)
 (walk over dam) along Well Creek 2 Salters Lode
 Sluice; River Ouse (26)

ROUTE V.

NORTH LEVEL SLUICE (Sutton Bridge,
 Lincolnshir.), to PETERBORO.'

By North Level Drain, New Wryde, Old Wryde,
 New Cut, River Nene, or Nene Washes.

River Nene, (2½ from Sutton Bridge) NORTH LEVEL SLUICE
 at Tydd along **NORTH LEVEL DRAIN**, ¼ Railway
 Bridge and Station and Inner Sluice (¼), ¼ Tydd Gote Bridge
 (1), ¼ Hannaths Bridge (1½), ¾ Kirkgate Bridge (2), 1 Tydd
 Bridge (3) ¼ Bridge (3½) 2½ Bridge (6½) ¼ Harold Bridge (6½).

Appendix C continued

$\frac{1}{4}$ Johnsons Bridge ($6\frac{1}{2}$) $\frac{1}{4}$ Bridge (7) $1\frac{1}{4}$ Bridge; Clow's Cross Sluice ($8\frac{1}{4}$)

W along **NEW SOUTH EAU** or French Drove Drain
 $\frac{1}{4}$ Bridge ($8\frac{1}{2}$) $\frac{1}{4}$ Coles Bridge ($9\frac{1}{4}$) 1 Rail. Bridge and
 Gedney Hill Station ($10\frac{1}{4}$) $1\frac{1}{4}$ Baileys Bridge (12) 1 ?
 Drain from Cowbit Wash (? St. James Drain) here joins
 New South Eau (13) [[along this Drain 5 Brother-house
 Bar on the Cowbit Wash (18)]] $1\frac{1}{4}$ Nomans Landhirn,
 End of New South Eau ($14\frac{1}{4}$) 2 (part of which can
 be skated on dykes) to Crowland ($16\frac{1}{4}$).]

At Clow's Cross turn S. along the **NEW WRYDE** $\frac{1}{4}$ Parson
 Drove Bridge ($8\frac{1}{4}$), 1 Bridge at turn near Murrow (Mid. R.)
 Station ($9\frac{1}{4}$) $\frac{1}{4}$ Rail. Bridge near Murrow (G. N. R.) Station ($10\frac{1}{4}$)
 1 Bridge ($11\frac{1}{4}$) $\frac{1}{4}$ end of New Wryde (12)

[W through Sluice along **OLD WRYDE** $\frac{1}{4}$ through
 Plantation where it seldom freezes, Rail. Bridge ($12\frac{1}{4}$)
 $\frac{1}{4}$ Bridge ($13\frac{1}{4}$) 1 Rail. Bridge ($14\frac{1}{4}$) $1\frac{1}{4}$ Thorney ($15\frac{1}{4}$).

Continuing S from end of New Wryde through Rail. Bridge
 along drain called **NEW CUT**, 1 mile, Boarden House and
 Bridge (13) $1\frac{1}{4}$ Knar Cross, Thorney Dyke on W ... (14 $\frac{1}{4}$)

[Along **THORNEY DYKE** $4\frac{1}{4}$ Thorney River and Stone
 Bridge ($18\frac{1}{4}$) cross Thorney River and continue W. 2
 Willow Hall ($20\frac{1}{4}$).]

$\frac{1}{4}$ Cross Guns, River Nene, and Ferry, the New Cut here turns
 W and becomes the (14 $\frac{1}{4}$)

Appendix C continued.

NORTH BANK COUNTER DRAIN you can skate W on it perhaps 3 miles ($17\frac{1}{2}$), it continues past Dog in Doublet, nearly to Peterboro', but is unskatable]

[From Cross Guns $2\frac{1}{2}$ E along Nene (to about $\frac{1}{2}$ mile short of Guyhirn Rail. Bridge) ($17\frac{1}{4}$) cross the Wash, Morton's Leam and South Bank $\frac{1}{4}$ to **SMALL DRAIN** marked on map ($17\frac{1}{2}$) 1 mile along Small Drain to Twenty-foot River ($18\frac{1}{2}$). Then *either* along Twenty-foot River Eastward $4\frac{1}{2}$ to the Old River Nene (23) and March (25).

Or along Twenty-foot W to Whittlesea Dyke and Whittlesea ($26\frac{1}{2}$), see Route 4.]

From Cross Guns $4\frac{1}{2}$ W along the **NENE** (or Wash if flooded)
Dog and Doublet and Bridge (19)

N along **THORNEY RIVER** through locks and over Counter Drain 1 Thorney Dyke and Stone Bridge (20) $2\frac{1}{4}$ Thorney and Stone Bridge ($22\frac{1}{4}$) $\frac{1}{4}$ under Railway by Station, Old Wryde ($22\frac{1}{2}$) $2\frac{1}{4}$ along small skatable drain, Noman's Land Hirne (25) 2 (only part of which distance may be skated,) Crowland (27).]

S along **DELPH DYKE** 1 to Whittlesea (20).]

Continue along the Nene 4 Bridge (23) $1\frac{1}{4}$ Peterboro' Bridge... ($24\frac{1}{4}$)

N.B.—If it is found at the Cross Guns that the Nene does not bear cross the Ferry and the Wash to Morton's Leam.

The following Routes, No. 6 & 7, were used by Mr. Burlingham, in his journies from Sutton Bridge to Lincoln and back.

ROUTE VI.

LINCOLN TO BOSTON by RIVER WITHAM.

LINCOLN. **RIVER WITHAM**, $\frac{1}{2}$ Rail. Bridge ($\frac{1}{2}$),
2 Ferry and Washingboro' Station ($2\frac{1}{2}$), $2\frac{1}{2}$ Five Mile
Station. (5)

Appendix C continued.

3½ Bardney Locks and Rail. Bridge (8½)

[Drain from Lincoln running parallel to the Witham here joins the River.]

½ Bardney Ferry and Station (8½) 2 here on W. Nocton Delph joins the river (10½) ½ Southry Ferry and Station (11½), 1½ Metherringham Delph (13)

[**METHERINGHAM DELPH**, (shewn, but not named in map) 3½ to end of artificial cut (16½).]

¼ Stixwold Ferry and Station (13½), 2¼ Kirkstead Ferry and Station, Timberland Delph (15½)

[**TIMBERLAND DELPH** (shewn, but not named in map) 3 to end of artificial cut (18½)]

2½ Walcott Delph (17½)

[**WALCOTT DELPH** (shewn, but not named in map) 3 to Car Dyke (20½) near Walcott.]

1 Tattershall Canal (18½)

[**TATTERSHALL CANAL**, ¼ Locks (19), ¼ Rail. Bridge (19½), ¾ Tattershall and Bridge (20), ½ Coningsby (20½), ¼ bridge and lock (20½), ¾ lock (21½), ¾ lock (22½) 1 Walten Beck here comes in (23½), ½ Kirkby Super Bain (23½), ¼ lock (24), ¼ bridge (24½), ¼ lock (24½), Roughton Lock (25½), ¾ Alderby Bridge and Lock (26½), ¾ Martin Lock, (27), ¾ lock (27½), bridge ¼, lock (28), ¾ Horncastle Station (28½).]

¼ Billingham Skirt (19)

[**BILLINGHAY SKIRT**, (shewn, but not named in map) 1 N. end of Twenty-foot Drain (20), 1½ Billingham (21½), 3½ Sleaford Canal (24½).]

¾ Tattershall Bridge (19½), ¾ Dog Dyke Ferry and Station (within ½ of the end of West Catch Water Drain), River

Appendix C continued.

Bain (20½)

[**RIVER, BAIN** (not shewn on map) ½ Tattershall,
here becomes part of canal.]

½ Here on E. is W. end of Howbridge Drain (21½), ½ Kyme
Eau or Sleaford Canal (21½)

[**SLEAFORD CANAL**, ½ (a small ditch at S. connects
with N. end of Forty-foot Drain.) Twenty-Foot Drain
at N. (22).

[**TWENTY-FOOT DRAIN**, (not shewn on map) 1½
Billinghay Skirt (23½)].

½ Drury Dyke (22½), ½ lock (23), ½ Kyme Lower Lock
(23½), 1 Darnford Tunnel (N. end of Clay Dyke) (24½).
1½ South Kyme (25½). 1½ Heckington Tunnel, N. end
of Midford Car Dyke (27), 5½ Dyers Mill (32½)
½ Coggleford Mill (33½), ½ Sleaford (34½).]

5 Langrick Ferry and Station (26½), 2 Anton's Gout. ; Castle
Dyke and Newham Dyke come in, having been united for ½.
Also Frith's Bank Drain runs E. (28½)

[**CASTLE DYKE** (not shewn on map) ½. Newham
Drain here branches off (29), 6 How-bridge Drain (35).]

[**NEWHAM DRAIN** (shewn without name on map)
½, Castle Drain here branches to W. (29), 2½ Stephenson's
Bridge, here drain crosses, called West Fen Drain, East-
ward, and How-bridge Drain, Westward (31½),

[**HOW-BRIDGE DRAIN** (shewn without name on
map), 2 W. end of Sandbank Drain (33½) 1 N. end of
Castle Dyke (34½), 2 close to River Witham (36½) as
given before at (20½)], 2 Sandy Bank Drain (33½)

½ bridge (34½) runs about 1 further N.]

[**FRITH BANK DRAIN** runs E, 1½ to lock and level
into West Fen Drain (shewn without name on map)
(30½), water runs N. along West Fen Drain ½, and thus
joins with it through lock and *under* Stonebridge Drain.]

Appendix C. continued.

2½ Boston Sluice and Rail. Bridge (30½)

ROUTE VII.

BOSTON to BOURNE,

By South Forty-Foot and Bourne Eau,

BOSTON, along **SOUTH FORTY-FOOT DRAIN**,
Black Sluice and Rail. Bridge ¼ North Forty-Foot (½)

[**NORTH FORTY-FOOT**, ¼ end of cut drain (1½), ¼
Benton's Bridge (2), 1½ Toft Tunnel (3½), 4 Holland Fen
Church (7½), 2½ Chapel Hill Hirne, end of Twenty-Foot
Drain (10), ¼ along ditch to Sleaford Canal (10½)]

2 Hammond Beck (1)

[**HAMMOND'S BECK** 3½, Old Hammond's Beck (4½),
1½ The Skirth (5½).]
[[Along the Skirth, ½ N. to the South Forty-Foot at Skirth
Bridge (6½).]]
¼ Swineshead Bridge (6½), 4½ Donninton Bridge (11),
3½ Risegate Clough (14½).]

2½ Hubbard Bridge and Station (3½), 1½ Clay Dyke ... (4½)

[**CLAY DYKE**, Rail. Bridge 5½ Damford tunnel.
Kyme Eau or Sleaford Canal (10½).]

¾ High Bridge and Swineshead Station (6½), 5½ Donnington
High Bridge (12½), (1 along here rarely freezes), 3½ Risegate
Eau on E. (16)

[**RISEGATE EAU**, 1½ Risegate Clough, Hammond's
Beck (17½), 7½ River Welland (25).]

4½ Bridge near River Glen, Guthram's Engine, end of South
Forty-foot (20½) along the **RIVER GLEN** or Small Drain
by its W Bank, 1 Rail. Bridge near Counter Wash Station (21½).

Appendix C continued

1½ Bourn Eau along (23½) **BOURN EAU** 3½, Bourn ... (26½)
 ½ walk to Station.

Rivers detached from the preceding routes.

SOUTH DROVE DRAIN from CROSS DRAIN, 1½
 Rail. Bridge (1½), 5½ Rail. Bridge (6½), 1½ Rail. Bridge
 (8). Pode Hole. Engine lifts water into Vernatt's Drain.

COUNTER DRAIN (shewn without name on map), near
 R. Glen, from CROSS DRAIN 3½, Counter Drain Station
 and Rail. Bridge (3½), 2½ Pode Hole. Here runs into
 Vernatt's Drain (6)

NORTH DROVE DRAIN, from CROSS DRAIN, 5½,
 North Drove Station and Rail. Bridge (5½), ½ Pode Hole
 (6), Engine lifts water into **VERNATT'S DRAIN**,
 2½ Bridge and Rail. Bridge (8½), 4 River Glen ... (12½)

SOUTH HOLLAND DRAIN, from Cowbit Wash. St.
 Guthlac's Cross. **BROTHERHOUSE BARR**, 1½ Rail.
 Bridge (1½), 2½ Whaplode Bank (3½), 5 Raven Bank (8½),
 5½ Rail. Bridge (14½), ½ Sluice, River Nene (15)
 ½ walk to Sutton Bridge Station.

*The above detached Rivers, Drains, &c., were either in part
 used, or are referred to in Mr. Burlingham's letter, page 176.*

RIVER NENE, Peterboro' to Wisbech.

PETERBORO' Bridge 5½ Dog and Doublet (5½), 4½
 Cross Guns (9½), 3½ Rail. Bridge (13), 3½ Three Horse
 Shoe Ferry (16½), 2 Wisbech Bridge (18½)

MORTONS LEAM, STANDGROUND Sluice, ½ Rail.
 Bridge (½), 5½ Delph Dyke (6), ½ New Cut (6½), 6 Rail.
 Bridge, near Guyhirn Station (12½)

Appendix C continued.

GOLD DYKE (S part only shewn on map), ¹ (near Cross Guns), 2½ to the Old Wride, 2½ Stone Bridge ... (4½)

EAST FEN MAIN DRAIN or **HOBHOLE DRAIN**

HOBHOLE SLUICE at the mouth of the River Witham, 1½ Nuns Bridge (1½), ½ Fishtoft Bridge (1½), 1 Freston Bridge (2½), ½ bridge (3½), ½ Cloughs Corner, here Cowbridge Drain joins on W. (3½), 1½ Ing's Bridge (5), 1½ Bennington Bridge (6½), ¾ bridge (7½), ½ Rail. Bridge and Old Leake Station (7½), ¼ bridge (8), 1 Lade Bank Bridge (9), 1½ Bridge (10½), ½ Bellwater Bridge (11), Drain runs northward to near East Fen Catch Water.

COW BRIDGE DRAIN (shewn, but not named in map).

CLOUGHS CORNER at East Fen Main Drain, 2 Rail. bridge (2) ¼ passes *under* Stone Bridge Drain (2½) ¼ lock, where West Fen Drain runs in.

WEST FEN DRAIN Sluice by Aqueduct ¾, Mill Drain on

the E. (¾), Mount Pleasant. Medlam Drain joins in same line from the N. West Fen Drain turns to N.W. (1½), 2½ Stephenson Bridge. Drain continues as Howbridge Drain; here Needham Drain crosses ... (4½)

MAUD FOSTER. Boston Mount Bridge, 2½ to W. end of Frith Bank Drain (2½), ¼ Aqueduct (2½); here continues as Stone Bridge Drain.

STONE BRIDGE DRAIN. Aqueduct ¾, Stone Bridge (¾), 1½ Hale Bridge (2½), 1½ Junction of East and West Fen Catch Water Drains ... (4)



INDEX.

	Page.
Age for learning	101
Amateur Champion	54, 161
" Champion (Cambridge)	53
" Champion (London)	54
Amsterdam	12
Analysis of Scratch	114
Angood of Chatteris	41
Antiquity of Skating	25
Arms, Swinging	106, 119, 125
Arrangements, Race Course	60, 68
Association National, Effects of	20
" " Object of	2
" " Racing Rules	21
Attitude of Skaters	6, 107, 113
Attention to Skating Grounds	126
Ayres of Welney	43
Ayres and Gittan, Race	43
Back River	174
Ball, Hockey	140
Bandy (see Hockey)	
Bardney	181
Barnes of Benwick	49
Barnwell, Cambridge	158
Barrels	68
Barrel and Flag	76
Bedford River, The old	9, 43, 168, 171
" " Description of	171
Bedford, Skating at	165
Bell at Races	70
Bending. Ice	138
Benwick, River at	174
Berry J. of Ramsey	41
" Description of	47
Bevills Leam	174
Bicyclist, Speed of	59
Black Board at Races	70

	Page.
Black Dyke (Boston)	182
Bluntisham	168, 175
,, Hockey Players	148, 167
,, Stanch	156
,, Station	169
Bluntness of Skates	97
Bone J. F., Spalding	51
Bone Skates	26
Boots, Size of	84
,, Suitable	85
Boston	156
Boston to Lincoln	180, 182
Bottisham	164
,, Lock	159, 160
Bourn Brook (Cambridge)	157
,, Eau, Skating on	178
,, Fen	182
Bradford of Farcet	41
Brandon	162
Brandon River, Description of	163
Breakage of Ice	138
Brotherhouse	177
Brown, N. and J. of Isleham	162
Burlingham's Mr. D. C. Letter	179
,, Mr. S. S.	179
Burgess of Whittlesea	41
Bury Fen	148
,, Description of	168
Butcher of Southery	47
Buying Skates	73
Cam, The River	155
,, Description of the	156, 164
,, Journey on the	158
Cambridge	175
,, Race	50, 53
,, to Ely	158
,, to Harrimere	161
Canada, Skating in	12
Carter H. of Welney	51, 166
Carters Bridge, Race at	39, 42
Carter v. Watkinson (Race)	166
"Cats-ice"	168
Cave of Sutton (Racing-man)	41, 44
Chair, Skating	136
Chairs	102, 135
Champion, Amateur Description of	54
Championship ,, (Cambridge)	53
,, ,, (London)	54

	Page.
Chatteris ...	171, 174
„ Journey to ...	174
„ Players ...	143
„ Race near ...	39, 42
Chatteris v. March (Race) ...	46
Charles, J. v. Young (Race) ...	44
Charles, (Racing-man) ...	44
Children, Skating ...	101
Choosing Skates ...	80
Christiana, Skating at ...	12
Clow's Cross ...	176, 177
Cockle T. of Hilrow ...	47
Collins of Soham ...	51
Collison of Nottingham ...	51
Colours worn by Racers ...	69
Company of Sweepers ...	127, 133
Cord carried by Skaters ...	190
Cottenham ...	161
Cottenham Players ...	148
Counter Wash Station ...	182
Counter Wash (Welland) ...	180
Counter Drain (Glen) ...	178
Counter Wash Drain (Nene) ...	176
Counter Wash Drain (Ouse) ...	171, 172
Courses, Crowds on ...	138
„ Length of ...	68, 70
„ Planning ...	128
„ (Race) Arrangement of ...	60, 68, 70
„ Sweeping ...	127
„ Width of ...	68, 129
Course Keeper at Races ...	70
Cowbit ...	177, 180
Cowbit Wash, Description of ...	177, 180
Cracked Ice ...	138
Croft, Mr. ...	42
Cross J. v. J. Smith (Race) ...	50
Cross Thos. of Ely ...	55
Cross Drain ...	178
Cross; Guns, The ...	176
„ „ to Clows Cross ...	176
Cross Drain near the Welland ...	178
Crowland ...	177, 179
„ Men of ...	38
„ Race at ...	38
Crute Mr. C. ...	54
Currents, effects on Ice ...	185
Dalton Mr. ...	180
Dann (Racing-man) ...	50

	Page.
Dangerous Ice	138
Deeping	156
Deeping Fen, Main Drain	178
Degrees of Frost	158
Denver	175
" Sluice	163, 170, 175
" Sluice to Cambridge	159
" Sluice to Earith	9
" Sluice and Ely, Journey	163
Devils Dyke	160
Dewsbury A. of Oxlode	51
Digby Mr. J. D.	1
Division of Prize Money	66
" of Race Course	61
" Dog in a Doublet," The	176
Donington Bridge	182
Downham Bridge	163
Drake of Chatteris	41
" Francis (Racing-man)	38
" John of Chatteris	37, 55
" M. of Chatteris	37
" Will of Chatteris	37, 46, 55
" W., Jun. (?) of Chatteris	46
" John, Sen. of Chatteris	46
" John, Jun. of Chatteris	46
Dreuthe, Skating at	12
Drowning, Cases of	164
" Danger of	187
Dutch Skating	32, 12, 29, 159
Dyalls (Racing-man)	38
Eager (Racing-man)	47
Eager Mr. S. on Skating	177
Earith	9, 169, 172, 175
" Bridge Station	161
" to Denver Sluice	9
" Players	167
" to Salters Lode (Hundred-foot)	175
" to Salters Lode, Journey	170, 175
" Sluice Gates, (Seven Holes or Nine Holes)	169, 171
" Stanch	156
" Suspension Bridge	175
" to Wisbech	175
" to Welney	172
Earth on Ice	98, 189
East Fen	183
Eau Brink Cut	174
Edgebaston Pool (Rotton Park)	35, 49
Edges, Skate Iron, use of	105, 114

	Page.
Elstree Race	56
Ely 12, 162,	175
" Dock	162
" Isle of 164,	162
" to Cambridge	158
" to Denver Sluice	163
" to Littleport	162
" Skating near	162
Elastic-side Boots	85
Engadine	12
Errors in Measurement	45
Explanation of Map	153
Faults of Learners	103
False Racing, Rule against	20
Falls on Ice	101
Farrer of Nordelph	47
Fastening Skates	88
" Fen Land Past and Present," The	34
Fen Skating, The Term	1
Fen Skating, Description of	6
Fens, Description of 2, 9,	155
Few of Sutton (Racing-man)	47
Field, Hockey	141
" Fish " Smart, see George Smart	
Fitz Stephen on Skating	28
" Five Miles from anywhere " (Upware)	160
Fixing Straps	89
Floods Ferry	174
Forty-foot River 42, 171, 173, 174,	175
" River, Description of	174
Foul Racing	61
Fosdyke, Journey on	182
Frequency of Skating	12
Friesland Races	71
Frost, Degrees of 158,	184
Frontispiece, Description of	42
Gaiters for Boots	85
Game of Hockey 10,	138
Gimlets	92
Gittam of Nordelph 35, 41, 42,	172
" Description of	43
Gittam v. Ayres (Race)	43
Gittam v. J. Staples (Race)	38
Gittam v. Young (Race)	41
Gittam v. C. Staples (Race)	38
Glen, River 155,	178

	Page.
Glen, River, Description of	156, 182
Godmanchester	166
" Players	148, 167
Goethe on Skating	15
Groningen, Skating at	12
Great Ouse, Description of	157
Granchester Fen, Description of	157
Granta, The River	157
Green of March	41, 46, 49
Grinding Skates	98
Groves on Ice	112
Grantham Canal, Skating on	183
Guthrams Engine, Drain to	178
Cuyhirm to Wishech	176
Guyhirm	176
Guyhirm, River below	176
Handicapping, Objections to	21
Haarlem, Siege of	29
Hague, The, Skating in	12
Hawes, A. of Welney	51, 56
Harrison, W. of Downham	51
Hartford, Skating at	148, 165, 167
" Meadow	148, 167
Handbook, Association	46
Harrimere	161
" to Hermitage	161
" to Ely	162
Hare of Littleport	41
Hankin, Mr. J. G.	66, 74
Heel of Skate too long	181
Hemingford Meadow	167
Hermitage	161
Hermitage Sluice	169
Heats, Arrangement of	39, 60
Height for size of Skate	84
Heel-holes in Boots	85
Heathcote's, Mr., Book	38
Hill, John of Billinge, Lancashire	53
Hicklin of Crowland	38
Historical References	25
Hilgay	163, 175
Hinchingbrook	166
Hockey, The game of	10, 138
" on River at Hartford	167
" Skates	76, 147
" Sticks	139
" Ball	140
" Field	141

	Page.
Hockey Players	141
„ Tactics	144
„ Rules	142
Hockey Clubs	148
Holland Skating in	12, 29
Horncastle Canal	181
Hobhole Sluice	183
Holywell	168
Holes in Boots for Screws	85
Houghton "Whale"	167
Holme, Racers of	49
Hundred-foot River	9, 164, 169, 172
„ River, Description of	9
„ Washes	9, 172, 175
Huntingdon	164
„ Race-course	166
„ Race	50 166
„ to Wisbech, Journey	164
„ Players	148, 167
Ice Chair	136
„ Cracked	138
„ Variety of	189
„ Sledges	27
„ Separating	166
„ "Cats"	168
„ Dangerous	138
„ Breaking	182, 186
Inaccuracy of Course	56
Introduction of Skating	31
Isleham	162
James II. a Skater	30
Journeys, Long	175
Judge at Races	69
Kicking up Heels	103
Kings Dyke	174
Klopstock on Skating	15
Knarr Cross	176
Lancashire Skaters, Defeat of	7
„ Skater beating Champion	53
Lark, The River	162
Ladies Dress	131
"Lamb and Flag," Welney	43
Length of Race Course	68, 70

	Page.
Length of Skate	73
„ of Stroke	113
Learning to Skate	101
Left Leg	103
Leg, The Movements of... ..	103
Lingay Fen, Description of	157
Lincoln	156, 181
„ and Boston, Skating between	180
Littleport	71, 162
„ to Southery Ferry	164
„ Race at	175
Little Ouse, Description of	164
„ „	162
London District Race	54
Lynn	156
Manea	171
Matches against time	55
Maud Foster Drain	183
May v. Young, Race	57
March	174
„ Route from	174
„ v. Chatteris (Race)	46
„ River	174
Marshland Cut	174
„ Sluice	174
May of Upwell	41, 57
Marks on Ice	112
Marks, Registered	76
Map of Fen Rivers	150, 151
„ Explanation of	153
Mepal	9, 172, 175
Mepal Bridge	169, 171
Meadows, Bury Fen	148, 168
„ Cowbit	70, 177, 180
„ Hartford	148, 167
„ Hemingford	167
„ Houghton	167
„ Hundred-foot (Washes)	154, 172, 175
„ Lingay Fen	157
„ Nene Washes	154
„ Preston's Field, Newnham	158
„ St. Ives	167
„ Stourbridge Common	158
„ Swavesey	168
„ Welland Wash	177
„ Witton	167
Midlle Level District	173, 174
Middle Level Drain	157, 172, 173, 175

	Page.
Mildenhall	162
Minot of Manea (Racing-man)	41
Middleditch of Reach (Racing-man)	41
Moritz, St., Skating at	12
Mortons Leam	176
Moxon, Dr.	51
Murrow	176
National Skating Association	1, 17, 168
" " " Effects of	20
" " " on False Racing	22
" " " Objects of	2
" " " Rules for Racing	62
" " " Handbook of	46
Nar, The River	163
Nene Outfall Cut	177
" to Trent, Skating between	183
" River, Description of	176
" New River	176
" Washes	174, 176
" The River	155, 173, 174, 179
New South Eau	177
" Wryde. Skating on	176
" River, The Hundred-foot	169, 175
Needham, (Racing-man)	47
Newnham, Skating at	158
North Level Main Drain	177
" " " Skating on	179
" " Skating District	176
" Forty-foot, Skating on	183
Norman, Mr. F. v. Mr. L. Tebbutt, (Race)	54
" Mr. F., of Willingham	54
Nordelph	172, 173, 174
Nottingham Canals	183
Number of Racers	64, 66
Nut of Screw	99
Oiling Straps	
Old Bedford River, Description of	9, 171
" Bedford "	9, 43, 169
" West River	161, 169, 175
" Wryde	176, 177
" West River, Description of	161
Outwell	173
Ouse, The Great	155, 173, 174, 175
" " Description of	164
" Great, Valley of	164
" The Little	162
Over Cote	168, 175

	Page.
"Patten," The Word	13
Passing in Races	61
" when Skating	130
Peterboro' ...	174, 176
" Route to	174
Peakirk Drain, Skating on	177
Peakirk	177
"Pike and Eel," The	160
Plough, Snow	134
Pode Hole	180
Podhole Engine	178
Pophams Eau	174
Portsand Drain	177
Porter of Southery (Racing-man)	47
Preston, Ice Field at	158
Prize for Speed	56
Prize Money, Division of	66
Prizes at Races	66
Price of Skates	73
Prow of Skates	77
Protection of Straps	96
Prickwillow	162
Praxinoscope	112
Practical Joke	191
Quarter-mile Race	53
Quickest Time	59
Race Course, Length of	68
" Description of	39
Racing Rules, St. Ives	65
Ramsey	171
Rampton	161
Rampton Lode	161
Raven's Clough	179
Reach Lode	160
Register, Larman of Southery	163
" " Description of	47
Resistance of Air	122
Registered Marks, Association	76
Richardson of Whittlesea	41
Rivers Fen, Description of	41, 155
Rolf, Mr. V.	53
Running Skates, "Standard"	74
Running v. Skating	59
Running Skating, The term	1
Rule for Passing	62, 130
Rules for Racing, St. Ives	65
Salter's Lode	9, 175

	Page.
Salter's Lode Sluice	163, 171, 172
" " to Earith	170, 175
" " to Wisbech	173
Scandinavian Literature	25
Scratches on Ice	112
Screw hole in Boot	86, 91
See, G., Welney	51
" Description of	48
Selection of Racers	39
Selling Races, Rule against	20
Sevenholes Bridge, Earith	171
Shelton, (Racing-man)	49
Short Race	53
Sixteen-foot River	173
Skates, Attention to	96
" Blade, Thickness of	76, 84
" " Shape of	77
" " Bluntness of	97
" Buying	73
" Carrying	92
" Choosing	80
" Curve of	80
" Grinding	99
" Heel of	86
" Hockey	76
" Iron stop on	90
" Position on Foot	86, 90
" Price of	73
" Racing	76
" Size of	73-76, 84
" Sole Spikes	77
" "Standard"	74
" Straps, (see straps)	
" Varnishing	97
" Walnut-wood	75, 82
" "Whittlesea Runner"	79
Skating Chair	135
" Grounds, Attention to	126
" Learning	102
Skill of Skaters	108
Sledges, Ice	27, 135
Sleaford Cut	181
Smart, George ("Fish,") of Welney	50, 51, 56, 183
" Description of	50
Smart, Jarman, Welney	51, 52
Smart, W. ("Turkey,") of Welney	35, 48, 49, 50
" at Edgebaston	35, 49
" Description of	48
Smart, W. v. Register (Race)	48
Smith Mr. J.	42

	Page.
Smith v. Cross (Race)	50
Smith, S. J. v. Dan (Race)	50
Smith, J. S. (or S. J., or C. S.), of Holme	49, 50, 166
Snow Division Line	130
Snow on Ice	127, 188
Snow-plough	134
South Level District	174
Southery	12, 163
" Ferry to Denver Sluice	163
South-drove Drain	178, 180
South Forty-foot, Skating on	182
South Holland Drain, Skating on	177, 179
" to the Welland	179
Spalding	12, 156, 178, 180, 182
" and Sutton, Journey between	179
Speed	54, 182
" Prize for	56
Sporting Annals	42
Stamford	156
"Standard" Running Skates	74
Standground	174
Staples, C. v. Gittam (Race)	38
Staples, C. v. Youngs (Race)	38
Staples, J. v. Gittam (Race)	38
Starting at Races	69
Sticks for Hockey	139
St. Ives Bridge	168
" Meadow	167
" Racing Suggestions	66
" Rules for Racing	65
" Skating Association	65, 74
St. Jame's Drain	177
St. Mary's Church Cambridge	153
St. Moritz	12
St. Neots	165
Stourbridge Common, Ice at	158
Stopping	107
Stow Park Station	182
Strap Buckles	90, 94
Straps, Arrangements of	88
" Fixing	89
" Holes in	93
" Length of	83
" Oiling	97
" Price of	73
" Protection to	96
" Quality of	78, 82
" Tightening	93
Stream, Effects of	185
Stretham Bridge	161

	Page.
Strokes on Ice	112
Style of Skating	32, 124
Suggestions as to Races	66
Suspension Bridge, Welney	170
Sutton, (Cambs.)	9
,, Bridge, (Cambs.)	169
,, Gault	171
,, Bridge, (Lincoln)	179
Swavesey, Drain from	168
,, Meadow	168
,, Players	148
,, Race	56
Sweepers, Snow	127
Sweeping Snow	123
,, Neglect of	127
Swinging Arms	106, 119, 125
Syphons, Site of	157, 174
Table of Winners	51, 52
Tattershall Bridge	180
Tebbutts', Messrs., Journeys	175
,, A., Mr., Table of Winners	51
Tebbutt, Mr. L. v. Mr. Norman (Race)	54
,, Mr. Louis	54
,, Mr. Sidney	79, 153
Terry of Wisbeach	41
Thorney Dyke, Skating	176
,, River	176
Thickness of Ice required	183
Thin Ice, Passing over	186
Thompson of Wimblington	38
Thompson v. Young (Race)	38
Theory of Skating	109
Tide, Effect of	169
Times of Races	53
Tongs Drain	174
Torry of Wisbeach	57
Tobacco-pipe stem	100
Torksey	182
Trower (Racing-man)	57
Trent and Nene, Skating between	179
Trent, River	182
"Turkey" (see W. Smart)	
Twenty-foot River	174
Tydd	177
Tyddgote	177
Upwell	174
Variety of Ice	189

	Page.
Varlow of Benwick	41
Vermuydens Drain	171, 173, 174, 175
Vernatts Drain ..	178, 180
Volunteers Skating	167
Ward Mr.	42
Watkinson T., Welney	50, 51, 166, 175
Washes, see Meadows	
Watkinson v. Carter (Race)	166
Welland River	155, 178
" Washes	177
Welney	9, 12, 171, 175
" Skaters	53
" " Lamb and Flag "	43
" Suspension Bridge	170
Welches Dam	171, 173, 175
" " to Marshland Sluice	173
West Fen	183
" River, The Old	161, 169, 175
Well Creek	172
Welmore Lakes Sluice	172
Whittlesea	174
Whittlesea Mere	174
" " Description of	33
" " Skating on	38
" " Site of	174
" " Drainage of	36
" " to Mildenhall	38
" Whittlesea " Running Skates	79
Whaplode	179
Wisbech.	173, 175
" Canal, Description of	173
" Canal	173
" to Huntingdon	164
" to Earith	175
Witton Meadow	167
Wissey, River	163
Wind, Skating with	181
" Effects on Racing	61
Wicken Fen, Description of	160
Witham, River	155, 180
" The River, Description of	156, 178
Wiles of Welney	49
Width of Course	68, 129
Winners, Table of	52
Wrench Key	99
Wildmore Fen	183
Wroxham Broad (Norwich)	24
Willingham	161

Youngs of Mepal	...	...	...	Page.
" " Description	...	...	...	38
Young v. May (Race)	...	...	...	44
Youngs of Nordelph	...	...	...	57
Young v. Gittam (Race)	...	...	...	41, 42. 172
Young v. Thompson (Race)	41
Young v. Staples (Race)	38
Zoetrope Pictures	38
				112



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